Note remarks

Test sheet : FOR 6,6 g Edition : 01.09.88 Replaces : 6.87 : ISO-4113 Test oil

: 9 400 085 248 Combination no.

Injection pump

Pump designation: PES6A95D412RS2709 : 9 400 083 009 EP type number

Governor

: RQV350...1400AB1202-Governor design.

: 9 420 080 220 Governer no.

Customer-spec. information : FORD (FTO) Customer

: 6.6 1 NA Engine

: 108.0 1st version kW : 2800 2nd version kW

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25

: (3.10...3.30)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 2.00...3.00

BASIC SETTING

rpm: 1400 1st speed

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 7.9...8.0

100 s: (7.7...8.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 7.0...11.0 Del.quantity cm3/: 0.7...1.1 100 s: (0.5...1.3)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1420 1st speed

: 8.50...8.60 rpm : 350 travel mm

2nd speed

: 1.30...1.60 travel mm

: 700 3rd speed rpm

: 4.20...4.60 travel mm

: 1100 4th speed rpm

: 6.10...6.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1420 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed : 79.0...80.0 Del.quantity 1000 : (77.0...82.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 60...66 Testina: 1st rack travel in: 9.70 rpm : 1450...1460 Speed 2nd rack travel in: 4.00 Speed rpm : 1550...1580 4th rack travel in: 1720 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...18 Testina: rpm : 100 Speed Minimum rack trave: 9.00 rpm : 350 Speed Rack travel in mm : 6.40...6.60 CONSTANT REGULATION rpm : 460...530 Speed START CUT-OUT Speed 1/min : 290 (310) FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 800 Del.quantity cm3/ : 70.0...73.0 1000 s: (67.5...75.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.70 rpm : 1450...1460 Speed

Rack travel in mm : 19.00...21.00

LOW IDLE

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

A02

Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 112.0...122.0 1000 s: (-)

Note remarks

Test sheet Edition : FOR 6,6 f : 01.09.88 : 6.87 Replaces Test oil : ISO-4113

Combination no. : 9 400 085 258

Injection pump

Pump designation : PES6A95D410RS2714 : 9 400 084 001 EP type number

Governor

: RQV375...1300AB1208-Governor design.

: 9 420 080 219 Governer no.

Customer-spec. information : FORD (FTO) Customer

Engine : 6,6 TC

1st version kW : 123.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.15...3.25 Prestroke mm

: (3.10...3.30)

A03

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.90 & maximum rack tra: 21.00 Difference ° CS : 2.00...3.00

BASIC SETTING

rpm : 13001st speed

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 8.6...8.8

100 s: (8.4...9.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 375.0 2nd speed Rack travel in mm: 6.7...6.9

Del.quantity cm3/: 0.9...1.3

100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1345 1st speed

: 8.50...8.60 travel mm

: 350 2nd speed rpm

: 1.30...1.60 travel mm

: 700 3rd speed rbm

: 4.10...4.50 travel mm : 1100

4th speed rpm

: 6.30...6.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1345 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Rack travel in m: 10.60...10.70 Speed rpm : 1300Aneroid pressure h: 600 2nd pressure hPa : 400 : 86.0...88.0 Rack travel in m: 12.20...12.30 Del.quantity 1000 : (84.0...90.0) cm3 : 3.50 1000 : (6.00) 3rd pressure hPa : 250 Rack travel in m: 11.00...11.20 Spread START CUT-OUT RATED SPEED 1/min : 290 (310) Speed 1st version Control Lever FUEL DELIVERY CHARACTERISTICS position degrees: 59...67 Testina: 1st version 1st rack travel in: 11.10 Aneroid pressure h: 600 Speed rpm : 600 Del.quantity cm3/: 83.0...86.0 1000 s: (80.5...88.5) Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1450...1480 4th rack travel in: 1600 Aneroid pressure h: 600 Speed rpm : 0.00...1.00 Speed rpm: 800 Del.quantity cm3/: 86.0...89.0 1000 s: (83.5...91.5) LOW IDLE 1 Control lever Aneroid pressure h: -Speed rpm : 600 Del.quantity cm3/ : 57.0...59.0 position degrees: 12...20 1000 s: (55.0...61.0) Testing: Speed rpm : 100 Minimum rack trave: 10.00 Speed rpm : 375 BREAKAWAY Rack travel in mm : 6.70...6.90 1st version CONSTANT REGULATION 1mm rack travel less than rpm : 460...530 Speed full load rack tr: 11.10 rpm : 1340...1350 TORQUE CONTROL Speed Dimension a mm : 0.70 Torque control curve - 1st version STARTING FUEL DELIVERY 1st speed rpm : 1300 Rack travel in m: 12.10...12.20 and speed rpm : 600 Rack travel in m: 12.80...12.90 Speed rpm : 100 Del.quantity cm3/ : 115.0...125.0 1000 s: (-) Rack travel in mm : 20.00...21.00 2nd speed rpm : 800 3rd speed Rack travel in m: 12.60...12.80 4th speed rpm : 900 Rack travel in m: 12.40...12.70 LOW IDLE rpm : 375 Aneroid/Altitude Rack travel in mm : 6.70...6.90 Compensator Test Del.quantity cm3/: 9.5...13.5 1000 s: (7.0...16.0) Spread cm3 : 3.50 1000 s: (5.50) 1st version Setting Speed : 500 rpm Pressure hPa : 600 Remarks: Rack travel mm : 12.80...12.90 Measurement Set shutoff stop 1.5...2.0 mm before Speed 1/min: 500 shutoff. 1st pressure hPa : -

Note remarks

Test sheet : FOR 6,6 i Edition : 01.09.88

Replaces

Test oil : ISO-4113

Combination no. : 9 400 085 266

Injection pump

Pump designation : PES6A95D410RS2751 : 9 400 084 013 EP type number

Governor

: RSV650...1250A8C2231 Governor design.

: 9 420 083 229 Governer no.

Customer-spec. information Customer : FORD (FNH)

: 6,6 L NA Engine

1st version kW : 101.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.15...3.25 Prestroke mm : (3.10...3.30)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - □ : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00

Difference ° CS : 6.00...7.00

BASIC SETTING

1st speed rpm: 1220

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 9.5...9.7

100 s: (9.2...9.9)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 650.0
Rack travel in mm : 5.2...5.4
Del.quantity cm3/: 0.7...1.1

100 s: (0.4...1.3)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1220 : 95.0...97.0 Del.quantity 1000 : (92.5...99.5)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 47...55 Testina:

1st rack travel in: 9.80 rpm : 1265...1270 Speed

2nd rack travel in: 4.00 rpm : 1295...1300 Speed

4th rack travel in: 1400

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 22...30 Setting point w/out bumper spring

rpm : 650 Rack travel in mm: 4.8

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 650

Rack travel in mm : 5.20...5.40 Rack travel in mm : 2.00

rpm : 690...750 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 800 Speed

Del.quantity cm3/: 81.0...85.0 1000 s: (79.0...87.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.80

rpm : 1265...1270 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 150.0...170.0 1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650 Rack travel in mm : 5.20...5.40 Del.quantity cm3/ : 7.0...11.0 1000 s: (4.5...13.5)

Spread cm3 : 3.501000 s: (5.50)

Remarks:

APPLICATION

Combine-harvester

Note remarks

: FOR 6,6 j 1 Test sheet : 01.09.88 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 9 400 085 267

Injection pump

Pump designation : PES6A95D410RS2751 EP type number : 9 400 084 013

Governor

: RSV650...1250A8C2231 Governor design.

-1L

: 9 420 083 230 Governer no.

Customer-spec. information Customer : FORD (FNH)

Engine : 6,6 L TC

: 112.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.00

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

A08

: 3.15...3.25 Prestroke mm : (3.10...3.30)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° $\pm 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 6.00...7.00

BASIC SETTING

1st speed rpm: 1220

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 9.1...9.3

100 s: (8.8...9.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 650.02nd speed Rack travel in mm : 5.2...5.4 Del.quantity cm3/: 0.7...1.1 100 s: (0.4...1.3)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1220 Speed

: 91.0...93.0 Del.quantity 1000 : (88.5...95.5)

: 3.50 Spread cm3

: (6.00) 1000

RATED SPEED

1st version Control lever Testina: Speed

position degrees: 47...55

1st rack travel in: 9.40

Speed rpm : 1265...1270 2nd rack travel in: 4.00

rpm : 1295...1300 4th rack travel in: 1400

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 22...30 Setting point w/out bumper spring

Speed rpm : 650 Rack travel in mm : 4.8

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 650 Speed

Rack travel in mm : 5.20...5.40

Rack travel in mm : 2.00

rpm : 690...750 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800 Del.quantity cm3/ : 77.0...81.0 1000 s: (75.0...83.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1265...1270 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 150.0...170.0 1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 5.20...5.40
Del.quantity cm3/ : 7.0...11.0 1000 s: (4.5...13.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

APPLICATION Combine-harvester

Note remarks

Test sheet : MWM 3,9 d Edition : 01.09.88 : 8.1.88 Replaces : TSO-4113 Test oil

Combination no. : 9 400 085 272

Injection pump

Pump designation : PES4A90D320RS2744 : 9 400 084 012 EP type number

Governor

: RSV350...1300A2B2215 Governor design.

-2R

: 9 420 083 234 Governer no.

Customer-spec. information Customer : MWM

: TD 229-4 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 046

Inlet press., bar: 1.00

Test nozzle holder

: D 681 343 009 assembly

Opening |

: 172...175 pressure, bar

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.70...2.80 : (2.65...2.85) Prestroke mm Rack travel in mm : 9.00...12.00

Firing order : 1-3-4-2 Phasing : 0-90-180-270

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00 Difference ° CS : 3.00...4.00

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 10.60...10.70

Del.quantity cm3/: 8.9...9.0

100 s: (8.7...9.2)

cm3 : 0.3Spread

100 s: (0.5)

rpm : 350.0 2nd speed

Rack travel in mm : 4.9...5.1 Del.quantity cm3/ : 1.1...1.5

100 s: (0.9...1.7) cm3 : 0.2

Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed

: 89.0...90.0 Del.quantity 1000 : (87.0...92.0) cm3 : 3.00

Spread 1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 55...63

Testing:

1st rack travel in: 9.60

rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1410...1440 4th rack travel in: 1600 Speed rpm : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 24...32 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 4.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 4.90...5.10 Rack travel in mm : 2.00 Speed rpm : 540...600 TORQUE CONTROL Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 10.60...10.70 2nd speed rpm : 500 Rack travel in m: 11.20...11.30 3rd speed rpm : 800 Rack travel in m: 10.90...11.20 4th speed rpm : 900 Rack travel in m: 10.80...10.90 FUEL DELIVERY CHARACTERISTICS 1st version Speed : 500 rpm Del.quantity cm3/: 87.0...89.0 1000 s: (84.5...91.5) rpm : 900 Speed Del.quantity cm3/: 89.0...91.0 1000 s: (86.5...93.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.60 rpm : 1340...1350 Speed STARTING FUEL DELIVERY rpm : 100 Speed Rack travel in mm : 19.00...21.00

Speed rpm : 350
Rack travel in mm : 4.90...5.10
Del.quantity cm3/: 11.0...15.0
1000 s: (9.0...17.0)
Spread cm3 : 2.50
1000 s: (4.50)

Remarks:

A11

LOW IDLE

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.15...3.25 Prestroke mm : (3.10...3.30) Rack travel in mm : 9.00...12.00 Note remarks : FOR 6,6 k : 01.09.88 : 1-5-3-6-2-4 Test sheet firing order Edition : 8.1.88 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing : 9 400 085 292 Combination no. Tolerance + - 0 : 0.50 (0.75)Injection pump Pump designation : PES6A95D410RS2742 Time to cyl. no. : 1 : 9 400 084 011 EP type number BEGINNING OF DELIVERY DIFFERENCE Governor : RQV350...1300AB1220-Governor design. betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00 Difference ° CS : 2.00...3.00 : 9 420 080 239 Governer no. Customer-spec. information : FORD FNH BASIC SETTING Customer rpm : 1300Engine : 6,6 L 1st speed : 123.0 Rack travel in mm : 12.80...12.90 1st version kW Rated speed : 2600 Del.quantity cm3/: 9.4...9.6 TEST BENCH REQUIREMENTS 100 s: (9.1...9.8) Test oil inlet temp. °C : 38...42 Spread cm3 : 0.3Overflow valve 100 s: (0.6) : 1 417 413 025 rpm : 350.0 2nd speed Rack travel in mm : 7.4...7.6 Inlet press., bar: 1.00 Del.quantity cm3/ : 2.2...2.6 100 s: (1.9...2.8) Test nozzle holder cm3 : 0.3: 1 688 901 017 assembly Spread 100 s: (0.5) Opening : 207...210 pressure, bar (B) Setting of injection pump with governor Orifice plate diameter mm : 0,6 GUIDE SLEEVE TRAVEL rpm : 1450 1st speed : 8.50...8.60 travel mm : 1 680 750 015 Test lines : 350 2nd speed rpm : 1.10...1.80 travel mm Outside diameter 500 3rd speed rpm : 2.70...3.10 : 700 x Wall thickness travel mm : 6.00x1.50x600 x Length mm 4th speed rpm : 3.50...3.90 : 1000 travel mm (A) Injection pump setting values 5th speed rpm : 4.90...5.30 Insp. values in parentheses travel mm Set equal delivery quant. per values ____ GUIDE SLEEVE POSITION Control-lever position BEGINNING OF DELIVERY Degree: -1 Test pressure, bar: 25...27 Speed rpm : 1540

Rack travel in mm : 8.00...0.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1300 Aneroid pressure h: 600 Del.quantity : 94.0...96.0 1000 : (91.5...98.5) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 111...119 Testing: 1st rack travel in: 11.80 Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1480...1510 4th rack travel in: 1600 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 68...76 Testing: rpm : 100 Speed Minimum rack trave: 10.00 Speed rpm : 350 Rack travel in mm : 7.40...7.60 CONSTANT REGULATION Speed rpm : 370...440 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : 600 Pressure Rack travel mm : 12.80...12.90 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.80...10.90 2nd pressure hPa : 300 Rack travel in m: 11.10...11.30 3rd pressure hPa : 400 Rack travel in m: 12.30...12.40 START CUT-OUT

Speed 1/min : 250 (270) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 600 Speed rpm : 800 Del.quantity cm3/ : 83.5...87.5 1000 s: (81.5...89.5) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 58.5...60.5 1000 s: (56.0...63.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.80 Speed rpm : 1340...1350 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 155.0...165.0 1000 s: (-) Rack travel in mm : 20.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 7.40...7.60 Del.quantity cm3/: 22.0...26.0 1000 s: (19.5...28.5) cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

Note remarks

: MB 4,0 a 8 Test sheet Edition : 01.09.88

Replaces

: ISO-4113

Test oil

: 9 400 085 295 Combination no.

Injection pump

Pump designation : PES4A90D410RS2666 : 0 410 894 029 EP type number

Governor

: RQV300...1400AB1065-Governor design.

: 0 420 212 169 Governer no.

Customer-spec. information

: DAIMLER-BENZ Customer

Engine : 0M364

1st version kW : 66.0 : 2800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.25...2.35 Prestroke mm

: (2.20...2.40)

Rack travel in mm : 9.00...12.00 : 1- 3- 4- 2 Firing order

: 0-90-180-270 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1400 1st speed

Rack travel in mm : 10.90...11.00

Del.quantity cm3/: 6.3...6.4

100 s: (6.1...6.6)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 300.0 Rack travel in mm: 8.6...8.8

Del.quantity cm3/: 0.8...1.2 100 s: (0.6...1.4)

Spread cm3 : 0.2

100 s: (0.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed : 0.80...1.30 travel mm

: 500 2nd speed rom

: 2.30...2.80 travel mm : 750 3rd speed

rpm : 4.10...4.30 travel mm

: 1500 4th speed rpm

travel mm : 8.50...8.60

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1500

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

: 63.0...64.0 Del.quantity 1000 : (61.0...66.0) cm3 : 3.00 1000 : (5.00)

Spread

RATED SPEED

1st version Control Lever

position degrees: 59...67

Testing:

1st rack travel in: 9.90

rpm : 1450...1460 Speed

2nd rack travel in: 4.00

rpm : 1560...1590 Speed

4th rack travel in: 1630

rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 20...28

Testing:

Speed : 100 man Minimum rack trave: 10.20 : 300 Speed man

Rack travel in mm : 8.60...8.80

Rack travel in mm : 2.00

CONSTANT REGULATION

Speed rpm : 540...680

TORQUE CONTROL

Dimension a mm : 1.30

Torque control curve - 1st version

1st speed rpm : 1400

Rack travel in m: 10.90...11.00

2nd speed rpm : 630

Rack travel in m: 12.20...12.30 3rd speed rpm : 900

Rack travel in m: 11.50...11.70

START CUT-OUT

 $1/\min : 220 (240)$ Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 630 Speed rpm

Speed rpm : 050 Del.quantity cm3/: 55.5...58.5 1000 s: (53.0...61.0)

rpm : 900 Speed

Del.quantity cm3/ : 54.5...57.5

1000 s: (52.0...60.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90

rpm : 1450...1460 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0)

Rack travel in mm : 17.00...17.40

Remarks:

Set shutoff stop to contact at 3.0...3.5 mm control-rod travel.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : FOR 6,6 L : 01.09.88 Edition Replaces Test oil : ISO-4113 Combination no. : 9 400 085 297 Injection pump Pump designation : PES6A95D41ORS2758-1 EP type number : 9 400 084 015 Governor : RQV350...1200AB1220-Governor design. : 9 420 080 252 Governer no. Customer-spec. information : FORD FNH Customer Engine : 6,6 L TC : 138.0 1st version kW : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 017 Opening pressure, bar : 207...210 Orifice plate : 0,6 diameter mm Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

Prestroke mm : 2.95...3.05 : (2.90...3.10)
Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1200 Rack travel in mm : 14.00...14.10 Del.quantity cm3/: 10.8...11.0 100 s: (10.6...11.2) cm3 : 0.3Spread 100 s: (0.6) rpm : 350.0 2nd speed Rack travel in mm : 6.9...7.1 Del.quantity cm3/ : 2.0...2.4 100 s: (1.8...2.6) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1200 1st speed : 7.70...7.90 travel mm 2nd speed rpm : 700 : 4.10...4.50 travel mm : 500 3rd speed rpm : 3.10...3.50 travel mm : 350 4th speed rpm travel mm : 1.70...2.10 : 270 5th speed rpm : 0.80...1.20 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1400 Speed Rack travel in mm : 8.00...0.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1200

Aneroid pressure h: 700 Del.quantity : 108.0...110.0 1000 : (106.0...112.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 57...65 Testing: 1st rack travel in: 13.00 Speed rpm : 1245...1255 2nd rack travel in: 4.00 rpm : 1380...1410 Speed 4th rack travel in: 1500 : 0.00...1.00 Speed rpm LOW IDLE 1 Control Lever position degrees: 12...20 Testing: Speed : 100 rpm Minimum rack trave: 10.00 Speed rpm : 350 Rack travel in mm : 6.90...7.10 CONSTANT REGULATION rpm : 360...430 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 700 Pressure Rack travel mm : 14.00...14.10 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.90...10.00 2nd pressure hPa : 355 Rack travel in m: 11.30...11.40 3rd pressure hPa : 490 Rack travel in m: 12.90...13.30

1/min: 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 700 rpm : 800 Del.quantity cm3/: 102.0...106.0 1000 s: (100.0...108.0) Aneroid pressure h: Speed rpm : 500 Del.quantity cm3/ : 53.0...55.0 1000 s: (51.0...57.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.00 Speed rpm : 1245...1255 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 150.0...170.0 1000 s: (145.0...175.0) Rack travel in mm : 20.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 6.90...7.10 Del.guantity cm3/: 20.0...24.0 1000 s: (18.0...26.0) cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

Speed

START CUT-OUT

Note remarks

Test sheet : FOR 6,6 L 1 : 01.09.88 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 9 400 085 298

Injection pump

Pump designation : PES6A95D410RS2758 : 9 400 084 016

EP type number

Governor

: RQV350...1300AB1220-Governor design.

: 9 420 080 253 Governer no.

Customer-spec. information : FORD FNH Customer

Engine : 6,6 L

1st version kW : 123.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

pressure, bar : 207...210

Orifice plate

: 0,6 diameter mm

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

A18

: 3.15...3.25 : (3.10...3.30) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 7.2...7.4 Del.quantity cm3/ : 2.0...2.4 100 s: (1.7...2.6)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1385 1st speed

: 8.50...8.60 travel mm

rpm : 300 2nd speed

: 1.10...1.50 travel mm

rpm : 500 3rd speed

: 3.20...3.60 travel mm

rpm : 700 4th speed

: 4.00...4.40 travel mm

: 1000 5th speed rpm

: 5.50...5.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1530 Speed Rack travel in mm: 8.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed

Aneroid pressure h: 900

Del.quantity : 98.0...100.0

1000 : (96.0...102.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 112...120

Testing:

1st rack travel in: 12.20

rpm : 1360...1370 Speed

2nd rack travel in: 4.00

rpm : 1500...1530 Speed

4th rack travel in: 1650

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control Lever

position degrees: 67...75

Testing:

Speed : 100 rpm Minimum rack trave: 10.00

: 350 man

Rack travel in mm : 7.20...7.40

CONSTANT REGULATION

rpm : 370...440 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 900 Pressure

Rack travel mm : 13.20...13.30

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.50...10.70 2nd pressure hPa : 353 Rack travel in m: 11.20...11.30

3rd pressure hPa : 473

Rack travel in m: 12.40...12.80

START CUT-OUT

1/min : 270 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm : 800

Del.quantity cm3/: 87.0...91.0 1000 s: (85.0...93.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 55.0...57.0 1000 s: (53.0...59.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20

rpm : 1360...1370 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 145.0...165.0 1000 s: (140.0...170.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 7.20...7.40 Del.quantity cm3/: 20.0...24.0 1000 s: (17.5...26.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before

shutoff.

Note remarks

Test sheet : DEE 7,6 c 2 : 19.9.88 Edition

Replaces : 10.85 Test oil : ISO-4113

Combination no. : 9 400 230 014

Injection pump

Pump designation : PES6A95D410RS2522

Governor

Governor design. : RSV400...1100A2B2055

Customer-spec. information Customer

: JOHN DEERE

: 6466 T Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x60@

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm : 1.85...1.95 : (1.80...2.00)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50(0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.50...10.60

Del.guantity cm3/: 10.0...10.2

100 s: (9.8...10.4)

cm3 : 0.3Spread

100 s: (-)

rpm : 400 2nd speed

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 1.2...1.6

100 s: (-)

cm3 : 0.3 Spread

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 800

: 100.5...102.5 Del.quantity

1000 : (98.5...104.5) cm3 : 3.0 1000 : (6.0)

Spread

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 9.50 Speed rpm : 1150
2nd rack travel in: 5.20
Speed rpm : 1200
4th rack travel in: 1200

4th rack travel in: 1350

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.50

Testina:

rpm : 100 Speed Minimum rack trave: 19.00 : 400

rpm

Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00

Speed : 650...680 rpm

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.50...10.60

2nd speed rpm : 650 Rack travel in m: 11.70...11.80

Aneroid/Altitude

Compensator Test

1st version

Settina

rpm : 550 hPa : 240 Speed rom Pressure

: 11.30...11.40 Rack travel mm

Measurement

 $1/\min : 550$ Speed

1st pressure hPa : 110

Rack travel in m: 10.40...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800 rpm : 650

Del.quantity cm3/: 112.5...115.5

1000 s: (110.5...117.5)

Aneroid pressure h: -

rpm : 550 Speed

Del.quantity cm3/: 86.0...92.0 1000 s: (84.0...94.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50

rpm : 1150 Speed

STARTING FUEL DELIVERY

A21

rpm : 100

Del.quantity cm3/: 165.0...185.0 1000 s: (-)

Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

rpm : 1200 Speed

Del.quantity cm3/: 19.6...29.6 1000 s: (-)

LOW IDLE

Speed rpm : 400 Del.quantity cm3/ : 12.0...16.0 1000 s: (10.0...18.0)

Remarks:

Start-of-delivery mark = 15.5° after

start of delivery cyl. 1.

APPLICATION

Tractor (tractor engines)

Note remarks

Test sheet : CUM 8,3 b Edition : 01.09.88 Replaces : 9.86 : ISO-4113 Test oil

: 9 400 230 103 Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 028 EP type number

Governor

Governor design. : RQV350...1100AB1227R

Governer no. : 9 420 231 015

Customer-spec. information Customer : CUMMINS

Engine : 6 CT 8.3

1st version kW : 156.6 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90

: (2.75...2.95)
Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 13.0...13.2

100 s: (12.8...13.4)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.6...5.8 Del.quantity cm3/ : 1.8...2.2 100 s: (1.5...2.4)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1160

: 8.10...8.20 travel mm

rpm : 350 2nd speed

: 0.90...1.30 travel mm

: 500 3rd speed rpm

3.30...3.60 travel mm

rpm : 800 4th speed

: 5.00...5.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1290

Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 670

Del.quantity : 130.5...132.5 1000 : (128.5...134.5) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 58...63 Testina: 1st rack travel in: 11.80 rpm : 1150...1160 Speed 2nd rack travel in: 4.00 : 1275...1305 Speed rpm 4th rack travel in: 1350 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 9...17 Speed rpm: 350 Rack travel in mm: 5.60...5.80 Rack travel in mm : 2.00 Speed : 485...545 rpm Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : 670 Rack travel mm : 12.80...12.90 Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 10.15...10.35 2nd pressure hPa : 535 Rack travel in m: 12.10...12.20 3rd pressure hPa : 387 Rack travel in m: 10.65...11.05 START CUT-OUT 1/min: 250 (270) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 670 rpm : 750 Speed Del.quantity cm3/: 128.5...132.5 1000 s: (126.0...134.0) Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 79.0...83.0 1000 s: (77.0...85.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.80 Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 165.0...0.0 1000 s: (160.0...0.0) Rack travel in mm : 15.40...15.60

LOW IDLE

1000 s: (5.50)

Remarks:

Set shutoff solenoid 0.5...1.5 mm before shutoff.

Start-of-delivery mark is at 7° after start of delivery.

Note remarks

: DEE 7,6 g 3 : 14.6.88 Test sheet Edition : 7.86 Replaces

: ISO-4113 Test oil

Combination no. : 9 400 231 084

Injection pump

Pump designation : PES6P110A720RS3083-1

Governor

Governor design. : RSV425...1100P2A489

Customer-spec. information : JOHN DEERE Customer

: 6466 A Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 456 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172.0...175.0

Test lines : 9 681 271 022

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

: 3.45...3.55 Prestroke mm

: (3.40....3.60)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

A24

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.00...12.10

Del.guantity cm3/: 13.80...14.00

Spread cm3 : 0.40

2nd speed rpm : 425

Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 1.10...1.60

cm3 : 0.45 Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: LOSE

Speed rpm: 800 Rack travel in mm: 0.30...1.00

Governor spring pre-tension

Click setting x : -

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 137.50...139.50 Del.quantity

1000 : (134.5...142.5)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testina:

1st rack travel in: 11.00

Speed rpm: 1155...1165 2nd rack travel in: 4.00

Speed rpm : 1230...1260 4th rack travel in: 1350

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control Lever

position degrees: 21...29

Setting point w/out bumper spring

rpm : 425 Speed

Rack travel in mm : 5.90....6.10

Testing:

rpm : 100 Speed

Minimum rack trave: 19.00

rpm : 425 Speed

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00 rpm : 655...715 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100 Rack travel in m: 12.00...12.10

2nd speed rpm : 700

Rack travel in m: 13.10...13.30

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : 370 Rack travel mm : 12.45...12.55

Measurement

1/min: 500 Speed

1st pressure hPa : 200

Rack travel in m: 11.40...11.80 Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 Speed rpm : 700 Del.quantity cm3/ : 155.50...159.50 1000 s: (152.5...162.5)

rpm : 500 Speed Del.quantity cm3/: 105.00...109.00

1000 s: (102.0...112.0)

Remarks:

Note remarks

Test sheet : DEE 7,6 g 4 : 17.10.88 Edition

Replaces : 5.3.87 Test oil : ISO-4113

Combination no. : 9 400 231 196

Injection pump

Pump designation : PES6P110A720RS3083

EP type number : 9 410 231 009

Governor

: RSV400...1050P2A488 Governor design.

: 9 420 234 130 Governer no.

Customer-spec. information

Customer : JOHN DEERE

Engine : 6466 AF

1st version kW : 167.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 3.45...3.55 Prestroke mm

: (3.40...3.60)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 14.9...15.1

100 s: (14.7...15.4)

cm3 : 0.4Spread

100 s: 0.75)

2nd speed rpm : 400

Rack travel in mm : 6.60...6.80 Del.quantity cm3/: 1.3...1.8

100 s: (1.1...2.1)

cm3 : 0.45Spread 100 s: (0.75)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 149.5...151.5 Del.quantity : (147.0...154.0)

1000

: 4.0 Spread cm3

1000 : (7.5)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 11.60

Speed rpm : 1095...1105

2nd rack travel in: 4.00

rpm : 1190...1200 Speed

3rd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 19...27
Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 6.20

Testina:

Speed : 100 rpm Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 6.60...6.80

Rack travel in mm : 2.00

Speed : 660...720 rom

TORQUE CONTROL

Torque control curve - 1st version st speed rpm : 1050
Rack travel in m: 12.60...12.70
Id speed rpm : 700
Rack travel in = 12.60

1st speed

2nd speed

Rack travel in m: 13.80...14.00

Aneroid/Altitude Compensator Test

1st version

Settina

Speed : 500 rpm hPa : 1200 Pressure

Rack travel mm : 13.80...14.00

Measurement

Speed $1/\min : 500$

1st pressure hPa : -

Rack travel in m: 10.30...10.50

2nd pressure hPa : 665

Rack travel in m: 12.90...13.00

3rd pressure hPa : 415

Rack travel in m: 11.20...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 700 Del.quantity cm3/ : 180.0...185.0 1000 s: (177.5...187.5)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 91.0...95.0 1000 s: (88.0...98.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.guantity cm3/: 156.0...176.0

1000 s: (152.0...180.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400 Rack travel in mm : 6.60...6.80

Del.quantity cm3/: 13.5...18.5 1000 s: (11.0...21.0)

Spread

cm3 : 4.5 1000 s: (7.5)

Remarks:

Adjustment without torque-control spring retainer with 1 mm less Start-of-delivery mark = 12,75° after start of delivery cyl. 1. rque-control Starting/full-load transition speed from holding magnet = 400 1/min.

: CAS 2,5 C : 07.11.88 Test sheet Edition : 16.07.87 replaces : ISO 4113 Calibrating oil

: VE 3/10F1090 R276-2 : 0 460 403 012 Injection pump Type number

Customer Part-No. :

Customer-specific information : CASE Customer

Engine : D 179/633/485

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Openina

bar: 172...175 pressure

Perforated-plate

mm : 0.6 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery block Piston stroke

mm: 1,0 mm: 0,98...1,02

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 800

Setting value mm: 4,8...5,2

Supply-pump pressure:

Note inst. in remarks column

1/min: 800 Speed Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

1/min: 800 Speed Del.quantity cm3/

1000H.: 73,3...74,3 cm3/: 2,5 1000H.: (3,5) Dispersion

Low-idle speed regulation:

1/min: 400 Speed

Del.quantity cm3/ 1000H.: 18,0...22,0 Dispersion cm3/: 2,5 1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 1145

Del.quantity cm3/

1000H: 45,0...51,0

Start:

1/min: 100 Speed Del.quantity mind cm3/1000H.: 75,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 500 1st speed

TD travel mm: (2,1...3,5)

1/min: 800 2nd speed

mm: 4,8...5,2 mm: (4,3...5,7) TD travel

1/min: 1500 3rd speed TD travel

mm: 6,1...6,9 mm: (5,8...7,2)

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 3,1...3,7 1/min: 800 pressure 2nd speed

Supply-pump

bar: 4,2...4,8 1/min: 1050 pressure

3rd speed Supply-pump

pressure bar: 5,1...5,7

Overflow quantity at overflow valve: Shutoff electromagnet: 1/min: 500 1st speed Cut-in : 41...83 min. voltage Oveflow quantity cm3/10s: (26...98) 2nd speed 1/min: 1050 Rated voltage Overflow : 55...138 Mounting and assembly dimensions: quantity cm3/10s: (40...153) Designation : 3,2...3,4 : 5,1...5,5 : 1,6...2,0 Delivery-quant. and breakaway char.: K mm KF mm 1/min: 1300 1st speed MS mm : 2,4 : 20,2...22,2 : 9,3...12,7 Del.quantity cm3/: 0,0...3,0 1000H.: -SVS max. mm XK mm 2nd speed 1/min: 1225
Del.quantity cm3/: 0,0...10,0
1000H.: -XL mm Remarks: 3rd speed 1/min: 1175
Del.quantity cm3/: 10,0...40,0
1000H.: -: APPLICATION 4th speed 1/min: 1145
Del.quantity cm3/: 45,0...51,0
1000H.: (43,5...52,5) Tractor (tractor engines) 1/min: 1050 5th speed Del.quantity cm3/: 76,5...79,5 1000H.: (75,5...80,5) 1/min: 800 6th speed Del.quantity cm3/: 73,3...74,3 1000H.: (71,5...76,1) 7th speed 1/min: 500 Del.quantity cm3/: 70,5...74,5 1000H.: (69,5...75,5) Zero delivery (stop): Mech. shutoff: 1/min: 1050 Speed Del.quantity cm3/: 0..3 1000H.: -Idle delivery: Del.quantity cm3/: 0,0...4,0 1000H.: -Automatic starting fuel delivery: 1st speed 1/min: 350 Del.quantity cm3/: -1000H: 80,0 ind. 1/min: 450 2nd speed Del.quantity cm3/: -max. 1000H: 80,0

Note inst. in remarks column

Test sheet : CAS 3,9I : 07.11.88 Edition

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/10F1250 R302

: 0 460 404 054 Type number

Customer-spécific information

Customer : CASE

Engine : DT 239

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp. °C

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Openina

bar: 172...175 pressure

Perforated-plate

diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery

Prestroke mm: 0,2

(from BDC): +0,02(0,04)

Indicator setting:

Piston stroke mm: 1.0 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 800

Setting value mm: 4,8...5,2

Supply-pump pressure:

1/min: 800

Setting value bar: 5,5...6,1

Full-load del. w/out charge press.:

1/min: 800 Speed

Del.quantity cm3/ 1000H.: 80,5...81,5 Dispersion cm3/: 3,0

1000H.: (3,5)

Low-idle speed regulation:

1/min: 370 Speed

Del.quantity cm3/ 1000H.: 16,5...20,5 Dispersion cm3/: 3,0 1000H.: (3,5)

Full-load speed regulation:

1/min: 1330

Del.quantity cm3/

1000H: 49,0...55,0

Start:

1/min: 100 Speed

Del.quantity cm3/1000H.: 90.0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500

mm: 2,4...3,2 mm: (1,5...2,9) TD travel

1/min: 800 2nd speed

mm: 4,8...5,2 mm: (3,9...5,3) TD travel

3rd speed 1/min: 1200

TD travel

mm: 6,8...7,6 mm: (6,3...7,7)

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 4,2...4,8 1/min: 800 pressure

2nd speed

Supply-pump

bar: 5,5...6,1 1/min: 1200 pressure

3rd speed

Supply-pump

bar: 6,9...7,5 pressure

B02

Overflow quantity at overflow valve:				
1st speed				
Delivery-quant. and breakaway char.:				
1st speed 1/min: 1470 Del.quantity cm3/: 0,03,0 1000H.: (0,03,0) 2nd speed 1/min: 1420				
Del.quantity cm3/: 0,010,0 1000H.: (0,010,0) 3rd speed 1/min: 1370 Del.quantity cm3/: 10,050,0				
1000H.: (10,050,0) 4th speed 1/min: 1330 Del.quantity cm3/: 49,055,0 1000H.: (47,556,5)				
5th speed 1/min: 1250 Del.quantity cm3/: 79,982,9 1000H.: (78,983,9)				
6th speed 1/min: 800 Del.quantity cm3/: 80,581,5 1000H.: (78,783,3) 7th speed 1/min: 500				
7th speed 1/min: 500 Del.quantity cm3/: 77,581,5 1000H.: (76,582,5)				
Zero delivery (stop):				
Mech. shutoff:				
Speed 1/min: 1250 Del.quantity cm3/: 03 1000H.: -				
Electr. shutoff:				
Speed 1/min: 370 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: -				
Idle delivery:				
1st speed 1/min: 370 Del.quantity cm3/: 16,520,5				

Automatic starting fuel delivery:

1st speed 1/min: 350
Del.quantity cm3/: ind. 1000H: 90,0

2nd speed 1/min: 450
Del.quantity cm3/: max. 1000H: 90,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Remarks:

Note inst. in remarks column

: OPE 2,3M5 : 01.08.88 Test sheet Edition : 18.07.88 replaces Calibrating oil : ISO 4113

: VE 4/10F2100 L297 Injection pump : 0 460 404 055 Type number

Customer-specific information

Customer : OPEL

Engine : 2,3 YDR

Power k: 74

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery Prestroke mm : -(from BDC): -

Indicator setting:

mm: 1.0 Piston stroke Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500 Charge press. hPa: 1000 mm: 5,1...5,5 Setting value

KSB solenoid-operated volt: 12.0 valve

Supply-pump pressure:

Speed 1/min: 1500 Charge press. hPa: 1000 Setting value bar: 5,1...5,7 KSB solenoid-operated volt: 12,0 valve

Full-load del. with charge press.:

Speed 1/min: 1200 Charge press. hPa: 1000 Del.quantity cm3/ 1000H.: 62,5...63,5

KSB solenoid-operated valve volt: 12,0 cm3/: 3,0 1000H: (3,0) Dispersion

Full-load del. w/out charge press.:

1/min: 500 Speed

Del.quantity cm3/ 1000H.: 38,0...39,0

Low-idle speed regulation:

1/min: 290 Speed

Del.quantity cm3/ 1000H.: 13,5...17,5

KSB solenoid-operated volt: 12,0 cm3/: 3,0 1000H.: (3,0) valve Dispersion

Full-load speed regulation:

1/min: 2500 Speed Charge press. hPa: 1000

Del.quantity cm3/

1000H: 15,0...21,0

Start:

1/min: 100 Speed Del.quantity cm3/1000H.: 53,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

	+	Charge press. hPa: 1000
1st speed 1/min: 300	+	Supply-pump
Charge press. hPa: 1000	+	pressure bar: 5,15,8
TD travel mm: 2,74,3	1	KSB solenoid-operated
mm: (2,34,7)	1	valve volt: 12 0
VCD selencid energied	Ŧ	valve volt: 12,0 4th speed 1/min: 2100
KSB solenoid-operated	T	4th speed 1/11/11: 2100
valve volt: -	+	Charge press. hPa: 1000
2nd speed 1/min: 800	+	Supply-pump
Charge press. hPa: 1000	+	pressure bar: 6,57,1
TD travel mm: 3,86,2	+	KSB solenoid-operated
mm: (3,26,8)	1	valve volt: 12,0
KSB solenoid-operated	1	vacve
valve volt: -		Overflow quantity at evenflow value
	T	Overflow quantity at overflow valve
3rd speed 1/min: 1200	†	4
Charge press. hPa: 1000	+	1st speed 1/min: 500
TD travel mm: 0,06,2	+	Charge press. hPa: -
mm: (0,06,2)	+	KSB solenoid-operated
KSB solenoid-operated	1	valve volt: 12,0
valve volt: -	1	Oveflow : 4183
4th speed 1/min: 800	- 1	quantity cm3/10s: (2698)
Champa hara hara 1000	T	2nd anad 4/min 2400
Charge press. hPa: 1000	T	2nd speed 1/min: 2100
TD travel mm: 1,52,3	+	Charge press. hPa: 1000
mm: (1,22,6)	+	KSB solenoid-operated
KSB solenoid-operated	+	valve volt: 12,0
valve volt: 12,0	+	Overflow : 55138
5th speed 1/min: 1200	1	quantity cm3/10s: (40153)
Charge press. hPa: 1000	1	quarter to more than the same
Th +noval mm: 7 7 / 7	I	Notivery-quant and breakayay chan
TD travel mm: 3,74,3	T	Delivery-quant. and breakaway char.
mm: (3,34,7)	+	4.4
KSB solenoid-operated	†	1st speed 1/min: 800
valve volt: 12,0 6th speed 1/min: 1500	+	Charge-air pressure-setting
6th speed 1/min: 1500	+	point hPa: 500
Charge press. hPa: 1000	+	LDA stroke mm: 6,5
TD travel mm: 5,15,5	+	KSB solenoid-operated
mm: (4,66,D)	1	valve volt: 12,0
KSB solenoid-operated	1	Del.quantity cm3/: 55,556,5
valve volt: 12,0	1	1000H.: (53,059,0)
vacve voce: 1270	1	2nd speed 1/min: 2700
1st speed 1/min. 2100	T	Change proce blos 1000
1st speed	T	Charge press. hPa: 1000
Charge press. hPa: 1000	+	KSB solenoid-operated
TD travel mm: 7,48,2	+	valve volt: 12,0
mm: (7,18,5)	1	
KSB solenoid-operated	T	Del.quantity cm3/: 0,06,0
	Ŧ	1000H.: (0,06,0)
valve volt: 12,0	<u> </u>	1000H.: (0,06,0)
	+	1000H.: (0,06,0) 3rd speed 1/min: 2500
valve volt: 12,0	† † †	1000H.: (0,06,0) 3rd speed
	+++++++++++++++++++++++++++++++++++++++	1000H.: (0,06,0) 3rd speed 1/min: 2500 Charge press. hPa: 1000 KSB solenoid-operated
Supply-pump pressure characteristic:	+ + + + + + + + + + + + + + + + + + + +	1000H.: (0,06,0) 3rd speed 1/min: 2500 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0
Valve Volt: 12,0 Supply-pump pressure characteristic: 1st speed 1/min: 300	* + + + + + + + + + + + + + + + + + + +	1000H.: (0,06,0) 3rd speed 1/min: 2500 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,021,0
Valve Volt: 12,0 Supply-pump pressure characteristic: 1st speed 1/min: 300 Charge press. hPa: 1000	*	1000H.: (0,06,0) 3rd speed 1/min: 2500 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,021,0 1000H.: (14,022,0)
Valve Volt: 12,0 Supply-pump pressure characteristic: 1st speed 1/min: 300 Charge press. hPa: 1000 Supply-pump	*	1000H.: (0,06,0) 3rd speed 1/min: 2500 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,021,0 1000H.: (14,022,0) 4th speed 1/min: 2100
Valve Volt: 12,0 Supply-pump pressure characteristic: 1st speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4,24,8	╿ ╿ ┃ ┃ ┃ ┃ ┃ ┃ ┃ ┃ ┃ ┃	1000H.: (0,06,0) 3rd speed 1/min: 2500 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,021,0 1000H.: (14,022,0) 4th speed 1/min: 2100 Charge press. hPa: 1000
Valve Volt: 12,0 Supply-pump pressure characteristic: 1st speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4,24,8 KSB solenoid-operated	* 	1000H.: (0,06,0) 3rd speed 1/min: 2500 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,021,0 1000H.: (14,022,0) 4th speed 1/min: 2100 Charge press. hPa: 1000 KSB solenoid-operated
Valve Volt: 12,0 Supply-pump pressure characteristic: 1st speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4,24,8 KSB solenoid-operated valve volt: -	* 	1000H.: (0,06,0) 3rd speed 1/min: 2500 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,021,0 1000H.: (14,022,0) 4th speed 1/min: 2100 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0
Valve Volt: 12,0 Supply-pump pressure characteristic: 1st speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4,24,8 KSB solenoid-operated valve volt: - 2nd speed 1/min: 1200	╿╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸	1000H.: (0,06,0) 3rd speed 1/min: 2500 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,021,0 1000H.: (14,022,0) 4th speed 1/min: 2100 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0
Supply-pump pressure characteristic: 1st speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4,24,8 KSB solenoid-operated valve volt: - 2nd speed 1/min: 1200 Charge press. hPa: 1000	╿╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸	1000H.: (0,06,0) 3rd speed 1/min: 2500 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,021,0 1000H.: (14,022,0) 4th speed 1/min: 2100 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 52,354,7 1000H.: (51,255,8)
Supply-pump pressure characteristic: 1st speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4,24,8 KSB solenoid-operated valve volt: - 2nd speed 1/min: 1200 Charge press. hPa: 1000	╿╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸	1000H.: (0,06,0) 3rd speed 1/min: 2500 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,021,0 1000H.: (14,022,0) 4th speed 1/min: 2100 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 52,354,7 1000H.: (51,255,8)
Supply-pump pressure characteristic: 1st speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4,24,8 KSB solenoid-operated valve volt: - 2nd speed 1/min: 1200 Charge press. hPa: 1000 Supply-pump	╿╸╏╸┩╸┩╸┩╸╏╸╏╸╏╸┫╺╏╸╏╸╏╸╏╸╏╸╏╸ ╬	1000H.: (0,06,0) 3rd speed 1/min: 2500 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,021,0 1000H.: (14,022,0) 4th speed 1/min: 2100 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 52,354,7 1000H.: (51,255,8) 5th speed 1/min: 1200
Supply-pump pressure characteristic: 1st speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4,24,8 KSB solenoid-operated valve volt: - 2nd speed 1/min: 1200 Charge press. hPa: 1000 Supply-pump pressure bar: 4,45,0	╿╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸╏╸┇╸┇	1000H.: (0,06,0) 3rd speed 1/min: 2500 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,021,0 1000H.: (14,022,0) 4th speed 1/min: 2100 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 52,354,7 1000H.: (51,255,8) 5th speed 1/min: 1200 Charge press. hPa: 1000
Supply-pump pressure characteristic: 1st speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4,24,8 KSB solenoid-operated valve volt: - 2nd speed 1/min: 1200 Charge press. hPa: 1000 Supply-pump pressure bar: 4,45,0 KSB solenoid-operated	╿╸╏╸┩╸┩╸┩╸┩╸╏╸╏╸┫╺╏╸┩╸╏╸┩╸╏╸┩╺╏╸╣╸┫╸┇	1000H.: (0,06,0) 3rd speed 1/min: 2500 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,021,0 1000H.: (14,022,0) 4th speed 1/min: 2100 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 52,354,7 1000H.: (51,255,8) 5th speed 1/min: 1200 Charge press. hPa: 1000 KSB solenoid-operated
Supply-pump pressure characteristic: 1st speed 1/min: 300 Charge press. hPa: 1000 Supply-pump pressure bar: 4,24,8 KSB solenoid-operated valve volt: - 2nd speed 1/min: 1200 Charge press. hPa: 1000 Supply-pump pressure bar: 4,45,0	┞╸╏╸┩╍┩╍┩╸╂╸┠╸┫╺╏╸╏╸╏╸╏╸╏╸┩╺╏╼╏╍╏╸┫╸╏╸	1000H.: (0,06,0) 3rd speed 1/min: 2500 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 15,021,0 1000H.: (14,022,0) 4th speed 1/min: 2100 Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 52,354,7 1000H.: (51,255,8) 5th speed 1/min: 1200 Charge press. hPa: 1000

Del.quantity cm3/: 62,5...63,5 1000H.: (60,7...65,3) 1/min: 800 6th speed Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 59,5...62,5 1000H.: -1/min: 800 7th speed Charge press. hPa: 500 KSB solenoid-operated valve volt: 12,0
Del.quantity cm3/: 55,5...56,5
1000H.: (53,0...59,0) 1/min: 800 8th speed KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 38,5...41,5 1000H: 1/min: 500 9th speed KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 38,0...39,0 1000H: (36,2...40,8) Zero delivery (stop): Electr. shutoff: 1/min: 290 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1/min: 290 1st speed KSB solenoid-operated valve volt: 12,0
Del.quantity cm3/: 13,5..17,5
1000H.: (11,5..19,5)
2nd speed 1/min: 320 KSB solenoid-operated valve volt: 12,0
Del.quantity cm3/: 7,0...13,0
1000H.: (6,5...13,5)
3rd speed 1/min: 380 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 0,0...2,6 1000H.: (0,0...2,6) Automatic starting fuel delivery: 1/min: 250 1st speed KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: -1000H: 55,0 ind.

B06

2nd speed 1/min: 400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: max. 1000H: 53,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : 3,2...3,4 KF mm : 5,6...6,0 MS mm : 0,8...1,2

Operate control lever after each manifold-pressure compensator pressure change.

Correction at adjusting nut (46)

Note inst. in remarks column

Test sheet : OPE 2,3M6 : 01.08.88 Edition : 18.07.88 replaces Calibrating oil : ISO 4113

Injection pump : VE 4/10F2100 L297-1 Type number : 0 460 404 056

Customer-specific information

Customer : OPFL

: 2,3 YDT Engine

k: 74 Power

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening |

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery Prestroke mm : -(from BDC): -

Indicator setting: Piston stroke mm: 1.0 Outlet : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1500 Charge press. hPa: 1000 Setting value mm: 5,1...5,5 KSB solenoid-operated volt: 12,0 valve

Supply-pump pressure:

Speed 1/min: 1500 Charge press. hPa: 1000 Setting value bar: 5,1...5,7 KSB solenoid-operated volt: 12,0 valve

Full-load del. with charge press.:

1/min: 1200 Speed Charge press. hPa: 1000 Del.quantity cm3/ 1000H.: 62,5...63,5

KSB solenoid-operated volt : 12,0 n cm3/ : 3,0 valve Dispersion 1000H : (3,0)

Full-load del. w/out charge press.:

1/min: 500 Speed Del.quantity cm3/ 1000H.: 38,0...39,0

KSB solenoid-operated valve volt: 12,0

Low-idle speed regulation:

Speed 1/min: 290 Del.quantity cm3/ 1000H.: 13,5...17,5

KSB solenoid-operated volt: 12,0 cm3/: 3,0 valve Dispersion 1000H.: (3,0)

Full-load speed regulation:

1/min: 2500 Charge press. hPa: 1000 Del.quantity cm3/ 1000H: 15,0...21,0

KSB solenoid-operated volt: 12,0 valve

Start:

Speed 1/min: 100 Del.quantity : - mind cm3/1000H.: 53,0 KSB solenoid-operated volt: 12,0

Load-dependent start of delivery:

Speed 1/min: 1500

	1 Supply-nump
*	+ Supply-pump
Inspection-pump test specifications	† pressure bar: 4,45,0
Test specifications in parentheses	+ KSB solenoid-operated
The second secon	+ valve volt: 12,0
Timina davias absociationistis.	7nd annual 1/min. 1500
Timing-device characteristic:	+ 3rd speed 1/min: 1500
	+ Charge press. hPa: 1000
	+ Supply-pump
1st speed 1/min: 300	pressure bar: 5,15,7
	VCD polymoral appropriate
Charge press. hPa: 1000	+ KSB solenoid-operated
TD travel mm: 2,74,3	+ valve volt: 12,0 + 4th speed 1/min: 2100
mm: (2,34,7)	+ 4th speed 1/min: 2100
KSB solenoid-operated	Charge press. hPa: 1000
valve volt: -	+ Supply-pump
2nd speed 1/min: 800	+ pressure bar: 6,57,1
Charge press. hPa: 1000	+ KSB solenoid-operated
TD + may 2 9 6 2	
TD travel mm: 3,86,2	+ valve volt: 12,0
mm: (3,26,8)	†
KSB solenoid-operated	+ Overflow quantity at overflow valve
valve volt: -	1
	1st smood 1/min. 500
3rd speed	† 1st speed 1/min: 500
Charge press. hPa: 1000	+ Charge press. hPa: -
TD travel mm: 0,06,2	+ KSB solenoid-operated
mm: (0,06,2)	1 valve volt: 12 ft
	+ valve volt: 12,0 + Oveflow : 4183
KSB solenoid-operated	+ UVETLOW : 4183
valve volt: -	+ quantity cm3/10s: (2698)
4th speed 1/min: 800	+ 2nd speed 1/min: 2100
	Change apage has 1000
Charge press. hPa: 1000	+ Charge press. hPa: 1000
TD travel mm: 1,52,3	+ KSB solenoid-operated
mm: (1,22,6)	+ valve volt: 12,0 + Overflow : 55138
KSB solenoid-operated	+ Overflow : 55138
value operated	7 OVELLEDW . 33130
_valve volt: 12,0	† quantity cm3/10s: (40153)
5th speed 1/min: 1200	+
Charge press. hPa: 1000	+ Delivery-quant. and breakaway char.
TD travel mm: 3,74,3	1 Doct vot y quarter and broadlandy area.
	T 4-1 4 4/ 000
mm: (3,34,7)	+ 1st speed 1/min: 800
KSB solenoid-operated	+ Charge-air pressure-setting
valve volt: 12.0	L point bPa: 500
valve volt: 12,0 6th speed 1/min: 1500	100 otnoko mm. 42
our speed Milin: 1500	LDA stroke mm: 6,2
Charge press. hPa: 1000	+ KSB solenoid-operated
TD travel mm: 5,15,5	+ valve volt: 12,0
mm: (4,66,0)	+ Del.quantity cm3/: 55,556,5
CD antomaid annuated	4000u . (57 0 50 0)
KSB solenoid-operated	1000H.: (53,059,0)
valve volt: 12,0	+ 2nd speed 1/min: 2700
	+ Charge press. hPa: 1000
1st speed 1/min: 2100	+ KSB solenoid-operated
Change annual host 1000	Nob soccio di operacca
Charge press. hPa: 1000	+ valve volt: 12,0
TD travel mm: 7,48,2	+ Del.quantity cm3/: 0,06,0
mm: $(7,18,5)$	1000H.: (0,06,0)
(1111)	+ 3rd speed 1/min: 2500
Supply-pump pressure characteristic:	+ Charge press. hPa: 1000
	+ KSB solenoid-operated
1st speed 1/min: 300	+ valve volt: 12,0
Charge press. hPa: 1000	+ Del.quantity cm3/: 15,021,0
Supply-pump	1000H.: (14,022,0)
pressure bar: 4,24,8	+ 4th speed 1/min: 2100
KSB solenoid-operated	+ Charge press. hPa: 1000
valve volt: -	+ KSB solenoid-operated
2nd speed 1/min: 1200	+ valve volt: 12,0
Charge press. hPa: 1000	+ Del.quantity cm3/: 52,354,7
	1000H.: (51,255,8)
	Τ Ιυυυπ (31,23)

5th speed 1/min: 1200 Charge press. hPa: 1000 KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 62,5...63,5 1000H.: (61,7...65,3) 1/min: 800 6th speed Charge press. hPa: 1000 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 59,5...62,5 1000H.: -7th speed 1/min: 800 Charge press. hPa: 500 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 55,5...56,5 1000H.: (53,0...59,0) 1/min: 800 8th speed KSB solenoid operated valve volt: 12,0 Del.quantity cm3/: 38,5...41,5 1000H: 1/min: 500 9th speed KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 38,0...39,0 1000H: (36,2...40,8) Zero delivery (stop): Electr. shutoff: 1/min: 290 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 1000H.: max. Idle delivery: 1/min: 290 1st speed KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 13,5..17,5 1000H.: (11,5..19,5) 2nd speed 1/min: 320 2nd speed KSB solenoid-operated valve volt: 12,0
Del.quantity cm3/: 7,0...13,0
1000H.: (6,5...13,5)
3rd speed 1/min: 380 KSB solenoid-operated valve volt: 12.0 Del.quantity cm3/: 0,0...2,6 1000H.: (0,0...2,6) Automatic starting fuel delivery: 1st speed 1/min: 250

B09

KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: - 1000H: 55,0 2nd speed 1/min: 400 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: - max. 1000H: 55,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : 3,2...3,4 KF mm : 5,6...6,0 MS mm : 0,8...1,2

Operate control lever after each manifold-pressure compensator pressure change.

Correction at adjusting nut (46)

Note inst. in remarks column

: OPE 2,3M7 Test sheet Edition : 01.08.88 replaces : 18.07.88 Calibrating oil : ISO 4113

Injection pump : VE 4/10F2100 L297-2

Type number : 0 460 404 057

Customer-specific information

Customer : OPEL

Engine : 2,3 YDT

k: 74 Power

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening.

pressure bar: 147...150

Test ini. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Start of delivery mm : -Prestroke (from BDC): -

Indicator setting:

Piston stroke mm: 1.0 Outlet : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500 Charge press. hPa: 1000 Setting value mm: 5,1...5,5 KSB solenoid-operated valve volt: 12,0

Supply-pump pressure:

1/min: 1500 Speed Charge press. hPa: 1000 Setting value bar: 5,1...5,7 KSB solenoid-operated volt: 12,0

Full-load del. with charge press.:

1/min: 1200 Speed Charge press. hPa: 1000

Del.quantity cm3/ 1000H.: 62,5...63,5

KSB solenoid-operated volt : 12,0 cm3/ : 3,0 1000H : (3,0) valve Dispersion

Full-load del. w/out charge press.:

1/min : 500 Speed

Del.quantity cm3/ 1000H.: 38,0...39,0

KSB solenoid-operated valve volt: 12,0

Low-idle speed regulation:

1/min: 290 Speed Del.quantity cm3/ 1000H.: 13,5...17,5

KSB solenoid-operated volt: 12,0 valve cm3/: 3.0Dispersion 1000H.: (3,0)

Full-load speed regulation:

1/min: 2525 Speed Charge press. hPa: 1000 Del.quantity cm3/ 1000H: 15,0...21,0

KSB solenoid-operated valve volt: 12,0

Start: '

1/min: 100 Del.quantity : - mind cm3/1000H.: 53,0 KSB solenoid-operated valve volt: 12,0

Load-dependent start of delivery:

1/min: 1500 Speed

B10

	+	Charge press. hPa: 1000
Inspection pump test specifications	+	Supply-pump
Test specifications in parentheses	+	pressure bar: 4,45,0
	+	KSB solenoid-operated
Timing-device characteristic:	+	valve volt: 12,0
	+	3rd speed 1/min: 1500
1st speed 1/min. 700	†	Charge press. hPa: 1000
1st speed 1/min: 300 Charge press. hPa: 1000	Ť	Supply-pump
TD travel mm: 2,74,3	I	pressure bar: 5,15,7 KSB solenoid-operated
mm: (2,34,7)	I	valve volt: 12,0
KSB solenoid-operated	1	4th speed 1/min: 2100
valve volt: -	1	Charge press. hPa: 1000
2nd speed 1/min: 800	+	Supply-pump
Charge press. hPa: 1000	1	pressure bar: 6,57,1
TD travel mm: 3,86,2	+	
mm: $(3,26,8)$	+	Overflow quantity at overflow valve
KSB solenoid-operated	+	•
_valvevolt: -	+	1st speed 1/min: 500
3rd speed 1/min: 1200	+	Charge press. hPa: -
Charge press. hPa: 1000	+	KSB solenoid-operated
TD travel mm: 0,06,2	†	valve volt: 12,0
mm: (0,06,2)	+	Oveflow : 4183
KSB solenoid-operated	+	quantity cm3/10s: (2698)
valve volt: 12,0	+	2nd speed 1/min: 2100
4th speed 1/min: 800	+	Charge press. hPa: 1000
Charge press. hPa: 1000	+	KSB solenoid-operated
TD travel mm: 1,52,3	†	valve volt: 12,0
mm: (1,22,6)	+	Overflow : 55138
KSB solenoid-operated	†	quantity cm3/10s: (40153)
valve volt: 12,0	†	Dalitions, much and bounders, show
5th speed 1/min: 1200	†	Delivery-quant. and breakaway char.
Charge press. hPa: 1000	Ť	1st smard 1/min. 200
TD travel mm: 3,74,3	Ť	1st speed 1/min: 800
mm: (3,34,7) KSB solenoid—operated	T	Charge-air pressure-setting
valve val+: 12 0	I	point hPa: 500 LDA stroke mm: 6,2
valve volt: 12,0 6th speed 1/min: 1500	I	KSB solenoid-operated
Charge press. hPa: 1000	Ι	valve volt: 12,0
TD travel mm: 5,15,5	Ι	Del.quantity cm3/: 55,556,5
mm: (4,66,0)	Ι	1000H.: (53,059,0)
KSB solenoid-operated		2nd speed 1/min: 2700
valve volt: 12,0	1	Charge press. hPa: 1000
70000 12/0	+	KSB solenoid-operated
1st speed 1/min: 2100	+	valve volt: 12,0
Charge press. hPa: 1000	+	Del.quantity cm3/: 0,06,0
TD travel mm: 7,48,2	+	1000H.: (0,06,0)
mm: $(7,18,5)$	+	3rd speed 1/min: 2100
KSB solenoid-operated	+	Charge press. hPa: 1000
valve volt: 12,0	+	KSB solenoid-operated
	+	valve volt: 12,0
Supply-pump pressure characteristic:	+	Del.quantity cm3/: 52,354,7
	+	1000H.: (51,255,8)
1st speed 1/min: 300	+	4th speed
Charge press. hPa: 1000	+	Charge press. hPa: 1000
Supply-pump	+	KSB solenoid-operated
pressure bar: 4,24,8	†	valve volt: 12,0
KSB solenoid-operated	†	Del.quantity cm3/: 62,563,5
valve volt: -	†	1000H.: (60,765,3)
2nd speed 1/min: 1200	+	5th speed 1/min: 800

Charge press. hPa: 1000 KSB solenoid-operated volt: 12,0 cm3/: 59,5...62,5 Del.quantity 1000H .: -6th speed 1/min: 800 Charge press. hPa: 500 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 55,5...56,5 1000H.: (53,0...59,0) 7th speed 1/min: 800 KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 38,5...41,5 1000H.: -1/min: 500 8th speed KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: 38,0...39,0 1000H: (36,2...40,8) Zero delivery (stop): Electr. shutoff: 1/min: 290 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1/min: 290 1st speed KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 13,5..17,5 1000H.: (11,5..19,5) 1/min: 320 2nd speed KSB solenoid-operated valve volt: 12,0
Del.quantity cm3/: 7,0...13,0
1000H.: (6,5...13,5)
3rd speed 1/min: 380 KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: 0,0...2,6 1000H.: (0,0...2,6) Automatic starting fuel delivery: 1st speed 1/min: 250 KSB solenoid-operated volt: 12,0 valve Del.quantity cm3/: ind. 1000H: 55,0 1/min: 400 2nd speed

KSB solenoid-operated valve volt: 12,0 Del.quantity cm3/: - max. 1000H: 53,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : 3,2...3,4 KF mm : 5,6...6,0 MS mm : 0,8...1,2

Operate control lever after each manifold-pressure compensator pressure change.

Correction at adjusting nut (46)

Note inst. in remarks column

: VMA 2,2 I : 27.07.88 Test sheet Edition

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/10F2100 L319 : 0 460 404 058

Type number

Customer-specific information

Customer

: HR 492 H 53 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Openina

pressure bar: 147...150

Test ini. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery Prestroke (from BDC): -

Indicator setting:

Piston stroke mm: 1.0 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1500 Setting value mm: 5,0...5,4

Supply-pump pressure:

1/min: 1500 Speed

B13

Setting value bar: 5,3...5,9

Full-load del. w/out charge press.:

1/min : 1500

Del.quantity cm3/ 1000H.: 38,5...39,5 Dispersion cm3/: 3,0 1000H.: (3,0)

Low-idle speed regulation:

1/min: 400 Speed

Del.quantity cm3/ 1000H.: 18,0...22,0 Dispersion cm3/: 3,0 1000H.: (3,0)

Full-load speed regulation:

1/min: 2300 Speed

Del.quantity cm3/ 1000H: 19,0...25,0

Start:

1/min: 100 Speed Del.quantity

mind cm3/1000H.: 53,0

Load-dependent start of delivery:

1/min: 1500 Speed

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800

TD travel

2nd speed

TD travel

mm: 0,7...1,5 mm: (0,4...1,8) 1/min: 1500 mm: 5,0...5,4 mm: (4,5...5,9) 1/min: 2100

3rd speed

mm: 7,6...8,4 mm: (7,3...8,7) TD travel

Supply-pump pressure characteristic:

1/min: 600 1st speed

Supply-pump

bar: 2,2...2,8 1/min: 1500 pressure

2nd speed

Supply-pump

bar: 5,3...5,9 1/min: 2100 pressure

3rd speed

Supply-pump bar: 7,2...7,8 pressure Overflow quantity at overflow valve: 1st speed 1/min: 600 Oveflow : 41...83 cm3/10s: (26...98) 1/min: 2100 quantity 2nd speed Overflow : 55...138 quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1/min: 2400 1st speed Del.quantity cm3/: 1,0...9,0 1000H.: (0,5...9,5) 1/min: 2300 2nd speed Del.quantity cm3/: 17,0...24,0) 1/min: 2200 3rd speed Del.quantity cm3/: 27,0...35,0 1000H.: 4th speed 1/min: 2100 Del.quantity cm3/: 31,0...34,0 1000H.: (29,5...35,5) 1/min: 1500 cm3/: 38,5...39,5 1000H.: (37,0...41,0) 5th speed Del.quantity 1/min: 1000 6th speed Del.quantity cm3/: 4 1000H.: cm3/: 43,2...45,8 7th speed 1/min: 600 Del.quantity cm3/: 40,5...43,5 1000H.: (39,0...45,0) Zero delivery (stop): Electr. shutoff: 1/min: 400 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1st speed 1/min: 400 Del.quantity cm3/: 18,0..22,0 1000H.: (15,0..25,0)

1/min: 480

1/min: 550

1000H.: (0,0...10,0)

Del.quantity cm3/: 2,0...8,0

Del.quantity cm3/: 0,0...2,0 1000H.: (0,0...2,0)

Automatic starting fuel delivery:

1/min: 400 1st speed Del.quantity cm3/: -1000H: 58,0 ind. 2nd speed 1/min: 500 Del.quantity cm3/: -max. 1000H: 65,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation : 3,2...3,4 : 5,6...6,0 : 0,6...1,0 K KF mmMS mm SVS max. mm Remarks:

2nd speed

3rd speed

Note inst. in remarks column

: SOF 2,5P : 27.07.88 Test sheet Edition

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/10F2050 R318 Type number : 0 460 404 059

Customer-specific information

Customer : IVECO-SOFIM

Engine : 8144.97.2200

Power k: 83

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Lenath

Start of delivery

Prestroke mm: 0,3

(from BDC): +-0.02(0.04)

Indicator setting:

Piston stroke mm: 1.0 Out let : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 600 Charge press. hPa: 800

Setting value mm: 1,3...1,7

Supply-pump pressure:

Speed 1/min: 600 Charge press. hPa: 800 Setting value bar: 3,4...4,0

Full-load del. with charge press.:

1/min: 1200 Speed Charge press. hPa: 800

Del.quantity cm3/ 1000H.: 69,0...70,0

cm3/: 3,0 1000H: (3,0) Dispersion

Full-load del. w/out charge press.:

Speed $1/\min : 600$

Del.quantity cm3/ 1000H.: 45,5...46,5

Low-idle speed regulation:

1/min: 400

Del.quantity cm3/ 1000H.: 16,0...20,0

Full-load speed regulation:

Speed 1/min: 2400 Charge press. hPa: 800 Del.quantity cm3/ 1000H: 30,0...36,0

Start:

1/min: 100 Speed Del quantity mind cm3/1000H.: 55,0

Load-dependent start of delivery:

Speed 1/min: 600

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 600 1st speed Charge press. hPa: 800

mm: 1,3...1,7 mm: (1,0...2,0) TD travel

1/min: 1200 2nd speed Charge press. hPa: 800

mm: 4,6...5,4 mm: (4,3...5,7) TD travel

1/min: 2000 3rd speed

Charge press. hPa: 800

TD travel mm: 8,4 mm: (8,1.	9,2	Charge press. hPa: 320 Del.quantity cm3/: 59,560,5 1000H: (57,562,5
Supply-pump pressure char	acteristic:	9th speed 1/min: 600 Del.quantity cm3/: 45,546,5
1st speed 1/min: 600 Charge press. hPa: 800	‡	1000H: (43,548,5
Supply-pump pressure bar: 3,4 2nd speed 1/min: 1200	.4,0	Zero delivery (stop):
Charge press. hPa: 800 Supply-pump	+	Electr. shutoff:
pressure bar: 5,2 3rd speed 1/min: 2000 Charge press. hPa: 800 Supply-pump	† +	Speed 1/min: 400 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: -
pressure bar: 7,2	+	Idle delivery:
Overflow quantity at over	Tiow valve:	1st speed 1/min: 400
1st speed 1/min: 600 Oveflow : 41	83	Del.quantity cm3/: 16,020,0 1000H.: (14,022,0)
quantity cm3/10s: (26	.98)	2nd speed 1/min: 450
2nd speed 1/min: 2100 Charge press. hPa: 800	İ	Del.quantity cm3/: 8,013,0 1000H.: -
Overflow : 55	138	3rd speed 1/min: 500
quantity cm3/10s: (40	.153)	3rd speed
Delivery-quant. and break	away char.:	4th speed 1/min: 700 Del.quantity cm3/: 2,05,0
1st speed 1/min: 800	+	1000н.: -
Charge-air pressure-setti point hPa: 320		Automatic starting fuel delivery
Del.quantity cm3/: 59,5. 1000H.: (57,5	60,5	1st speed 1/min: 450
2nd speed 1/min: 2500	+	Del.guantity cm3/: -
Charge press. hPa: 800	+	ind. 1000H: 38,0
Deliquantity cm3/: 13,5.	22,5	2.4
1000H.: - 3rd speed	1	2nd speed
Charge press. hPa: 800	Ţ	max. 1000H: 46,5
Del.quantity cm3/: 30.0. 1000H.: (29.0	36,0	Shutoff electromagnet:
4th speed 1/min: 2100	<i>5</i> (70)	Shutor etectionaghet.
Charge press. hPa: 800	+	Cut-in
Del.quantity cm3/: 59,5. 1000H.: (28,8		min. voltage : 10,0 Rated voltage : 12,0
5th speed	+	
Charge press. hPa: 800 Del.quantity cm3/: 65,5.	68.5	Mounting and assembly dimensions
1000H.: -	I	Designation
6th speed 1/min: 1200	+	K mm : -
Charge press. hPa: 800	<u>+</u>	KF mm : $5,66,0$
Del.quantity cm3/: 69,0. 1000H.: (57,5	61,5)	MS mm : 1,62,0 XK mm : 20,022,0
7th speed 1/min: 800	+	XL mm : 11,815,2
Charge press. hPa: 800 Del.quantity cm3/: 64,3.	67,3	Remarks:
1000H.: - 8th speed	‡	Correction at adjusting nut (46)

Note inst. in remarks column

: CAS 5,9E Test sheet Edition : 01.08.88

replaces

Calibrating oil : ISO 4113

Injection pump : VE 6/10F1150 R287 : 0 460 406 056 Type number

Customer Part-No.: 1329 155 C1

Customer-specific information

Customer

: D 358/956 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

pressure bar: 172...175

Perforated-plate

diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery Prestroke (from BDC): -

Indicator setting:

Piston stroke mm: 1.0 Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 800

Setting value mm: 5,4...5,8

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Supply-pump pressure:

1/min: 800

Setting value bar: 5,3...5,9

Full-load del. w/out charge press.:

 $1/\min : 800$ Speed

Del.quantity cm3/

1000H.: 71,0...72,0 cm3/: 3,0

Dispersion 1000H.: (3,5)

Low-idle speed regulation:

1/min: 350 Speed

Del.quantity cm3/ 1000H.: 18,0...22,0 Dispersion cm3/: 3,0 1000H.: (3,5)

Full-load speed regulation:

Speed 1/min: 1160

Del.quantity cm3/

1000H: 46,0...52,0

Start:

1/min: 100 Speed Del.quantity

mind cm3/1000H.: 70,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 500 1st speed

mm: 2,4...3,2 mm: (2,1...3,5 1/min: 800 TD travel

2nd speed

mm: 5,4...5,8 mm: (4,9...6,3) 1/min: 1000 TD travel

3rd speed

mm: 6,7...7,5 mm: (6,4...7,8) TD travel

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 4,0...4,6 pressure

1/min: 800 2nd speed

Supply-pump

bar: 5,3...5,9 1/min: 1000 pressure

3rd speed

Supply-pump bar: 6,1...6,7 pressure Overflow quantity at overflow valve: 1/min: 500 1st speed Oveflow : 41...83 cm3/10s: (26...98) quantity 1/min: 1050 2nd speed Overflow : 55...138 quantity cm3/10s: (40...153) Overflow Delivery-quant. and breakaway char .: 1/min: 1300 1st speed Del.quantity cm3/: 0,0...3,0 1000H .: -1/min: 1260 2nd speed Del.quantity cm3/: 0,0...10,0 1000H.: -3rd speed 1/min: 1210
Del.quantity cm3/: 0,0...10,0
1000H.: -1/min: 1160 4th speed Del.quantity cm3/: 46,0...52,0 1000H.: (44,5...53,5) 1/min: 1050 5th speed Del.quantity cm3/: 73,5...76,5 / 1000H.: (72,4...77,6) 1/min: 800 6th speed Del.quantity cm3/: 71,0...72,0 1000H.: (68,9...74,1) 1/min: 500 7th speed Del.quantity cm3/: 68,5...72,5 1000H.: (67,1...73,9) Zero delivery (stop): Mech. shutoff: 1/min: 1050 Speed Del.quantity cm3/: -1000H.: -Idle delivery: 1st speed 1/min: 350 Del.quantity cm3/: 18,0..22,0 1000H.: (15,5..24,5) 1/min: 450 2rid speed Del.quantity cm3/: 0,0...4,0 1000H.: -Automatic starting fuel delivery: 1/min: 350 1st speed Del.quantity cm3/: -1000H: 80,0 ind. 2nd speed 1/min: 450

Del.quantity cm3/: - max. 1000H: 80,0 Shutoff electromagnet: Cut-in min. voltage Rated voltage Mounting and assembly dimensions: Designation : 3,2...3,4 Κ mm : 5,6...6,0 : 1,3...1,7 KF mm MS mm SVS max.

Remarks:

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Note inst. in remarks column

: CAS 5,9D : 07.11.88 Test sheet Edition

replaces

: ISO 4113 Calibrating oil

Injection pump : VE 6/10F1500 R306 : 0 460 406 057 Type number

Customer-specific information

Customer

: CASE

Engine : D358

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar: 172...175 pressure

Perforated-plate

diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery Prestroke mm: -

(from BDC): -

Indicator setting: Piston stroke mm: 1.0 Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900

Setting value mm: 5,0...5,4

Supply-pump pressure:

1/min: 900 Setting value bar: 5,3...5,9

Full-load del. w/out charge press.:

1/min: 900 Speed

Del.quantity cm3/

1000H.: 75,5...76,5

cm3/: 3,0 1000H.: (3,5) Dispersion

Low-idle speed regulation:

1/min: 275 Speed

Del.quantity cm3/ 1000H.: 15,0...19,0 Dispersion cm3/: 3,0 1000H.: (3,5)

Full-load speed regulation:

1/min: 1550 Speed

Deliquantity cm3/

1000H: 53,5...59,5

Start:

1/min: 100 Speed

Del.quantity

mind cm3/1000H.: 70,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed

1/min: 500 mm: 2,0...2,8 mm: (2,0...3,4) 1/min: 900 TD travel

2nd speed

mm: 5,0...5,4 mm: (4,3...5,7) TD travel

1/min: 1200 3rd speed

TD travel

mm: 6,6...7,4 mm: (5,9...7,3)

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump

bar: 3,6...4,2 1/min: 900 pressure

2nd speed

Supply-pump

bar: 5,3...5,9 1/min: 1200 pressure

3rd speed

Supply-pump

bar: 6,4...7,0 pressure

Overflow quantity at overflow valve: 1st speed 1/min: 500 Oveflow : 41...83 cm3/10s: (26...98) quantity 2nd speed 1/min: 1480 2nd speed 1/min: 1480 2nd speed 1/min: 1480 2nd speed : 55...138 2nd quantity cm3/10s: (40...153) 2nd speed Overflow Delivery-quant. and breakaway char.: 1/min: 1700 1st speed cm3/: 0,0...3,0Del.quantity 1000H.: (0,0...3,0) 1/min: 1660 2nd speed Del.quantity cm3/: 0.0...10.0 1000H.: (0,0...10,0) 3rd speed 1/min: 1610 Del.quantity cm3/: 10,0...50,0 1000H.: (10,0...50,0) 4th speed 1/min: 1550 Del.quantity cm3/: 53,5...59,5 1000H.: (52,0...61,0) 1/min: 1480 cm3/: 75₂0...78₂0 5th speed 1/min: 900 6th speed Del.quantity cm3/: 75,5...76,5 1000H.: (73,7...78,3) 7th speed 1/min: 500 Del.quantity cm3/: 68,0...72,0 1000H.: (67,0...73,0) Zero delivery (stop): Mech. shutoff: Speed 1/min: 1480 Del.quantity cm3/: 0..3 1000H.: -Idle delivery: 1st speed 1/min: 275 Del.quantity cm3/: 15,0..19,0 1000H.: (13,0..21,0) 1/min: 400 2nd speed Del.quantity cm3/: 0,0...4,0 1000H.: (0,0...4,0) Automatic starting fuel delivery: 1/min: 350 1st speed Del.quantity cm3/: -1000H: 80,0 ind. 1/min: 450 2nd speed

Shutoff electromagnet: Cut-in

min. voltage : -Rated voltage : -

Mounting and assembly dimensions:

Designation

3,2...3,4 mm 5,6...6,0 KF mm : 1,3...1,7 MS mm : 3,1 SVS max. mm : 20,2...22,2 XK mm : 15,8...19,2 XL mm

Remarks:

B21

Del.quantity cm3/: max. 1000H: 80,0

Note inst. in remarks column

Test sheet : VWW 2,4 S5 Edition : 07.11.88

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/10F2150 L324

: 0 460 406 061 Type number

Customer-specific information

Customer : VW

: 087T-LT(SG)2 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Indicator setting:

Piston stroke mm: 1.0 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500 Charge press. hPa: 750

Setting value mm: 2,2...2,6

Supply-pump pressure:

1/min: 1500 Charge press. hPa: 750 Setting value bar: 6,0...6,6

Full-load del. with charge press.:

Speed 1/min: 1850 Charge press. hPa: 750

Del.quantity cm3/ 1000H.: 34,0...35,0 Dispersion cm3/: 2,5 1000H : (3.0)

Full-load del. w/out charge press.:

Speed $1/\min : 600$

Del.quantity cm3/ 1000H.: 24,5...25,5

Low-idle speed regulation:

1/min: 375 Speed Del.quantity cm3/ 1000H.: 6,0...10,0

Full-load speed regulation:

1/min: 2400 Speed Charge press. hPa: 750

Del.quantity cm3/

1000H: 13,0...17,0

Start:

Speed 1/min: 100 Del.quantity mind cm3/1000H.: 35,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1250 1st speed Charge press. hPa: 750

TD travel mm: 0,5...1,3 mm: (0,2...1,6)
2nd speed 1/min: 1500
Charge press. hPa: 750

mm: 2,2...2,6 mm: (1,7...3,1) 1/min: 1850 TD travel

3rd speed Charge press. hPa: 750

mm: 3,7...4,5 mm: (3,4...4,8) TD travel

4th speed 1/min: 2150 Charge press. hPa: 750 TD travel mm: 3,74,5 mm: (3,44,8)	† †	Del.quantity cm3/: 38,042,0 1000H.: (36,543,5) 8th speed 1/min: 750 Charge press. hPa: 300 Del.quantity cm3/: 31,032,0 1000H: (28,534,5)
Supply-pump pressure characteristic:	1	1000H: (28,534,5) 9th speed 1/min: 600
1st speed 1/min: 600 Charge press. hPa: 750 Supply-pump	+	Charge press. hPa: 750 Del.quantity cm3/: 34,538,5 1000H: (33,040,0)
pressure bar: 3,64,2 2nd speed 1/min: 1500 Charge press. hPa: 750	‡ ‡	10th speed 1/min: 600 Charge press. hPa: - Del.quantity cm3/: 24,525,5
Supply-pump pressure bar: 6,06,6 3rd speed 1/min: 2150 Charge press. hPa: 750	T +	1000H: (22,028,0) Zero delivery (stop):
Supply-pump pressure bar: 7,78,3	+	Electr. shutoff:
Overflow quantity at overflow valve:	Ī	Speed 1/min: 375 ELAB volt: -
1st speed	 	Del.quantity cm3/: 0,03,0 max. 1000H.: -
quantity cm3/10s: (2698) 2nd speed 1/min: 2150 Charge press. hPa: 750	+	Idle delivery:
Overflow : 55138 quantity cm3/10s: (40153)	<u>†</u>	1st speed 1/min: 375 Del.quantity cm3/: 6,010,0 1000H.: (4,012,0)
Delivery-quant. and breakaway char.:	+	2nd speed 1/min: 500 Del.quantity cm3/: 0,04,0
1st speed 1/min: 750 Charge-air pressure-setting point hPa: 300	Ī	1000H.: (0,04,0) Automatic starting fuel delivery:
Del.quantity cm3/: 31,032,0 1000H.: (28,534,5)	‡	1st speed 1/min: 250
2nd speed 1/min: 2575 Charge press. hPa: 750 Del.quantity cm3/: 0,06,0	† † +	Del.quantity cm3/: - ind. 1000H: 35,0
1000H.: (0,06,0) 3rd speed 1/min: 2400 Charge press. hPa: 750	<u>†</u>	2nd speed 1/min: 450 Del.quantity cm3/: - max. 1000H: 40,0
Del.quantity cm3/: 13,017,0 1000H.: (11,019,0)	+	Shutoff electromagnet:
4th speed 1/min: 2350 Charge press. hPa: 750 Del.quantity cm3/: 15,525,5	‡	Cut-in min. voltage : 10,0
1000H.: (14,526,5) 5th speed 1/min: 2150	+	Rated voltage : 12,0
Charge press. hPa: 750 Del.quantity cm3/: 30,032,0 1000H.: (28,833,2)	+	Mounting and assembly dimensions: Designation
6th speed 1/min: 1850 Charge press. hPa: 750 Del.quantity cm3/: 34,035,0	+	K mm : 3,23,4 KF mm : 6,26,6 MS mm : 0,91,3
1000H.: (32,336,7) 7th speed		Remarks: Correction at adjusting nut (46)
·	7-	

Note inst. in remarks column

Test sheet : STE 1,6 B Edition : 07.11.88

replaces

Calibrating oil : ISO 4113

: VE 2/11F1200 R236-1 Injection pump

Type number : 0 460 412 002

Customer Part-No. :

Customer-specific information Customer : STEYER

: WD 208-41 TRAKTOR Engine

Power k: 22

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening |

pressure bar: 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Start of delivery

Prestroke mm: 0,3

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1000 Speed

Setting value mm: 4,9...5,3

Supply-pump pressure:

1/min: 1000 Speed

B25

Setting value bar: 5,3...5,9

Full-load del. w/out charge press.:

1/min : 1000

Del.quantity cm3/

1000H.: 61,5...62,5 cm3/: 3,5

Dispersion

1000H.: ~

Low-idle speed regulation:

Speed 1/min: 300

Del.quantity cm3/

1000H.: 7,0...11,0

Dispersion cm3/: 3,5

1000H.: -

Full-load speed regulation:

Speed 1/min: 1280

Del.quantity cm3/ 1000H: 29,0...35,0

Start:

1/min: 100 Speed

Del.quantity mind cm3/1000H.: 65,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600

mm: 1,5...2,3 mm: (1,2...2,6) TD travel

1/min: 1000 2nd speed

mm: 4,9...5,3 TD travel

mm: (4,4...5,8) 1/min: 1200

3rd speed

mm: 6,6...7,4 mm: (6,3...7,7) TD travel

Supply-pump pressure characteristic:

1/min: 600 1st speed

Supply-pump

bar: 3,3...3,9 1/min: 1000 pressure

2nd speed

Supply-pump

bar: 5,3...5,9 1/min: 1200 pressure

3rd speed

Supply-pump

bar: 6,4...7,0 pressure

Overflow quantity at overflow valve:

1st speed 1/min: 500 Cut-in : 41...83 Oveflow min. voltage cm3/10s: (26...98) quantity Rated voltage 1/min: 1200 2nd speed Overflow : 55...138 Mounting and assembly dimensions: quantity cm3/10s: (40...153) Designation Delivery-quant. and breakaway char.: mm : 5,3...5,7 : 0,8...1,2 : 17,0...19,0 KF mm 1/min: 1350 cm3/: 0,0...3,0 1st speed MS mm Del.quantity XK mm 1000H.: -: 12,0...15,4 XL mm Remarks: 1000H.: -1/min: 1280 3rd speed Del.quantity cm3/: 29,0...35,0 1000H.: (28,0...36,0) 4th speed 1/min: 1200 Del.quantity cm3/: 59,0...62,0 1000H.: (58,2...62,8) 5th speed 1/min: 1000
Del.quantity cm3/: 61,5...62,5
1000H.: (59,7...64,3)
6th speed 1/min: 800
Del.quantity cm3/: 58,5...61,5 1000H.: -7th speed 1/min: 500 Del.quantity cm3/: 50,5...53,5 1000H.: (49,5...54,5) Zero delivery (stop): Mech. shutoff: Speed 1/min: 1200 Del.quantity cm3/: 0..3 1000H.: -Idle delivery: 1st speed 1/min: 300
Del.quantity cm3/: 7,0...11,0
1000H.: (5,0...13,0)
2nd speed 1/min: 350 Del.quantity cm3/: 0,0...2,6 1000H.: -Automatic starting fuel delivery: 1/min: 170 1st speed Del.quantity cm3/: -1000H: 70,0 ind. 1/min: 280 2nd speed Del.quantity cm3/: - max. 1000H: 47,5 Shutoff electromagnet:

Note inst. in remarks column

: PER 5,0 D Test sheet : 07.11.88 Edition

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/11F2250 R274 Type number : 0 460 414 045

Customer Part-No. :

Customer-specific information Customer : PERKINS

: 500 SER 6 MAR TC4500 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 022

Openina

bar: 130...133 pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 mm : 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Indicator setting:

Piston stroke mm: 1.28 Outlet |

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1500 Speed Charge press. hPa: 800 Setting value mm: 3,9...4,3 KSB solenoid-operated volt: valve

Supply-pump pressure:

1/min: 1500 Charge press. hPa: 800
Setting value bar: 7,1...7,7
KSB solenoid-operated valve volt: -

Full-load del. with charge press.:

1/min: 1500 Charge press. hPa: 800 Del.quantity cm3/ 1000H.: 66,1...67,1

KSB solenoid-operated valve volt: cm3/: 4,0 1000H: (4,0) Dispersion

Full-load del. w/out charge press.:

 $1/\min : 500$ Speed Del.quantity cm3/

1000H.: 17,0...18,0

KSB solenoid-operated valve volt: -Dispersion cm3/: 4.01000H.: (4,0)

Low-idle speed regulation:

Speed 1/min: 400 Charge press. hPa: -Del.quantity cm3/ 1000H.: 10,0...12,0

KSB solenoid-operated volt: valve cm3/: 3.0Dispersion 1000H.: (3,0)

Full-load speed regulation:

1/min: 2500 % Speed Charge press. hPa: 800

Del.quantity cm3/

1000H: 23,5...25,5

KSB solenoid-operated valve volt: -

Start:

1/min: 100 Speed Charge press. hPa: -Del.quantity : - mind cm3/1000H.: 62,0 KSB solenoid-operated valve volt: -

	1
Inspection-pump test specifications	1st speed 1/min: 500
Test specifications in parentheses	+ Charge press. hPa: -
	+ KSB solenoid-operated
Timing-device characteristic:	+ valve volt: -
	+ Oveflow : 4183
	† quantity cm3/10s: (2698)
1st speed 1/min: 500	+ 2nd speed 1/min: 2250
Charge press. hPa: 800	+ Charge press. hPa: 800
TD travel mm: 1,03,0	+ KSB solenoid-operated
mm: - KSB solenoid-operated	+ valve volt: - + Overflow : 55138
valve volt: 12,0	quantity cm3/10s: (40153)
2nd speed	quarterty (11137 103. (40133)
Charge press. hPa: 800	Delivery-quant. and breakaway char.
TD travel mm: 3,35,3	+
mm: —	1st speed 1/min: 500
KSB solenoid-operated	+ Charge-air pressure-setting
valve volt: 12,0	+ point hPa: 300
3rd speed 1/min: 1000	+ LDA stroke mm: 6,7
Charge press. hPa: 800	+ KSB solenoid-operated
TD travel mm: 0,91,7	+ valve volt: -
mn: (0,62,0)	Del.quantity cm3/: 34,535,5
KSB solenoid-operated	1000H.: (32,038,0)
valve volt: -	2nd speed 1/min: 2600
4th speed	Charge press. hPa: 800
ro travel mm: 3,94,3	+ KSB solenoid-operated + valve volt: -
mm: (3,44,8)	Del.quantity cm3/: 0,56,5
(SB solenoid-operated	+ 1000H.: (0,07,0)
valve volt: -	+ 3rd speed 1/min: 2500
oth speed 1/min: 1800	+ Charge press. hPa: 800
Charge press. hPa: 800	+ KSB solenoid-operated
TD travel mm: 4,95,7	+ valve volt: -
mm: (4,66,0)	+ Del.quantity cm3/: 23,525,5
(SB_solenoid-operated	+ 1000H.: (20,528,5)
valve volt: -	+ 4th speed 1/min: 2250
Summly numm unconsume shameshanishis.	Charge press. hPa: 800
Supply-pump pressure characteristic:	+ KSB solenoid-operated + valve volt: -
lst speed 1/min: 1000	Del.quantity cm3/: 68,572,5
Charge press. hPa: 800	1000H.: (67,573,5)
Supply-pump	+ 5th speed 1/min: 1500
pressure bar: 6,16,7	Charge press. hPa: 800
(SB solenoid-operated)	+ KSB solenoid-operated
valve volt: -	+ valve volt: -
2nd speed 1/min: 1500	+ Del.quantity cm3/: 66,167,1
Charge press. hPa: 800	1000H.: (63,669,6)
Subbra-bamb	+ 6th speed 1/min: 500
pressure bar: 7,17,7	† Charge press. hPa: 800
(SB solenoid-operated	+ KSB solenoid-operated
valve volt: -	+ valve volt: -
ord speed 1/min: 1800	Del.quantity cm3/: 58,364,3 1000H.: -
Charge press. hPa: - Supply-pump	7th speed 1/min: 500
pressure bar: 7,78,3	Charge press. hPa: -
(SB solenoid-operated	KSB solenoid-operated
valve volt: -	+ valve volt: -
	Del.quantity cm3/: 17,018,0
Overflow quantity at overflow valve:	1000H.: (14,520,5)

Zero delivery (stop): Mech. shutoff: Speed 1/min: 2250 Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: 1/min: 400 Speed volt: 12,0 ELAB Del.quantity cm3/: 0,0...3,0 1000H.: max. Idle delivery: 1st speed 1/min: 400 KSB solenoid-operated volt: valve Del.quantity cm3/: 10,0..12,0 1000H.: 7,0...15,0) 1/min: 500 2nd speed KSB solenoid-operated valve volt: -Del.quantity cm3/: 2,0...8,0 1000H.: (1,5...8,5) Automatic starting fuel delivery: 2nd speed 1/min: 350 Charge press. hPa: -KSB solenoid-operated valve volt: -Del.quantity cm3/: -max. 1000H: 30,0 Shutoff electromagnet: Cut-in : 10,0 : 12,0 min. voltage Rated voltage Mounting and assembly dimensions: Designation : 3,2...3,4 mm KF mm : K-0T MS mm : 0,6...1,0SVS max. mm : -Remarks: Correction at adjusting nut (46)

Note inst. in remarks column

Test sheet : CUM 3,9J : 01.08.88 Edition

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/11F1200 R277
Type number : 0 460 414 047 : 0 460 414 047 Type number

Customer Part-No.: 1329 163 C1

Customer-specific information

Customer : CASE

: D 246/785 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar: 172...175 pressure

Perforated-plate

mm : 0.6 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Indicator setting:

Piston stroke mm: 1.0 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 800

Setting value mm: 5,1...5,5

C02

Supply-pump pressure:

1/min: 800

Setting value bar: 3,7...4,3

Full-load del. w/out charge press.:

1/min: 800 Speed

Del.quantity cm3/

1000H.: 75,0...76,0 cm3/: 3,5 1000H.: (4,0)

Dispersion

Low-idle speed regulation:

1/min: 350 Speed

Del.quantity cm3/

1000H.: 16,5...20,5 cm3/: 3,0

Dispersion

1000H.: (4,0)

Full-load speed regulation:

1/min: 1260 Speed

Del.quantity cm3/

1000H: 51,0...57,0

Start:

1/min: 100 Speed Del.quantity

mind cm3/1000H.: 85,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 500 1st speed

mm: 2,6...3,4 mm: (2,3...3,7 1/min: 800 TD travel

2nd speed

mm: 5,1...5,5 TD travel

mm: (4,6...6,0)1/min: 1150 3rd speed

mm: 7,4...8,2 mm: (7,1...8,5) TD travel

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 2,6...3,2 1/min: 800 pressure

2nd speed

Supply-pump

bar: 3,7...4,3 1/min: 1150 pressure

3rd speed

Supply-pump bar: 5,0...5,6 pressure Overflow quantity at overflow valve: 1/min: 500 1st speed : 41...83 Oveflow cm3/10s: (26...98) quantity 1/min: 1150 2nd speed Overflow : 55...138 quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1/min: 1400 cm3/: 0,0...3,0 1st specifically cms/. 0, 1000H.: -1st speed 1/min: 1360 2nd speed Del.quantity cms/: 1000H.: cm3/: 0,0...10,0 1/min: 1310 3rd speed Del.quantity cm3/: 10,0...0,0 1000H.: -4th speed 1/min: 1260 Del.quantity cm3/: 51,0...57,0 1000H.: (49,5...58,5) 5th speed 1/min: 1150
Del.quantity cm3/: 76,0...79,0
1000H.: (74,9...80,1) 1/min: 800 6th speed Del.quantity cm3/: 75,0...76,0 1000H.: (72,9...78,1) 1/min: 500 7th speed Del.quantity cm3/: 66,0...70,0 1000H.: (64,6...71,4) Zero delivery (stop): Mech. shutoff: 1/min: 1150 Speed 1000H.: -Idle delivery: 1/min: 350 1st speed Del.quantity cm3/: 16,5..20,5 1000H.: (14,0..23,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,0...4,0 1000H.: -Automatic starting fuel delivery: 1/min: 350 1st speed Del.quantity cm3/: -1000H: 80,0 ind.

1/min: 450

Del.quantity cm3/: - max. 1000H: 80,0 Shutoff electromagnet: Cut-in min. voltage Rated voltage Mounting and assembly dimensions: Designation KF mm MS mm : 1,6 SVS max. mm : 20,2...22,2 : 11,9...15,3 mm XK XL mm

Remarks:

2nd speed

Note inst. in remarks column

: CAS 4,4 B Test sheet : 07.11.88 Edition : 17.07.87 replaces Calibrating oil : ISO 4113

: VE 4/11F1150 R277-1 : 0 460 414 048 Injection pump

Type number

Customer-specific information

Customer : CASE

Engine : D 268/844S

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar: 172...175 pressure

Perforated-plate

diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery mm : -Prestroke (from BDC): -

Indicator setting:

Piston stroke mm: 1.0 Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/m̃in: <u>8</u>00 Setting value mm: 3,0...3,4 Supply-pump pressure:

1/min: 800 Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

1/min: 800 Speed

Del.quantity cm3/ 1000H.: 80,7...81,7 Dispersion cm3/: 3,5 1000H.: (4,0)

Low-idle speed regulation:

Speed 1/min: 350

Del.quantity cm3/ 1000H.: 16,5...20,5 Dispersion cm3/: 3,5

1000H.: (4,0)

Full-load speed regulation:

1/min: 1190

Del.quantity cm3/

1000H: 52,0...58,0

Start:

Speed 1/min: 100 Del.quantity cm3/1000H.: 85,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 500 1st speed

TD travel mm: 0,8...1,6mm: (0,5...1,9)

1/min: 800 mm: 3,0...3,4 mm: (2,5...3,9) 1/min: 1100 mm: 5,0...5,8 2nd speed

TD travel

3rd speed

TD travel

mm: (4,7...6,1)

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

pressure bar: 3,1...3,7 1/min: 800

2nd speed

amua-vJaau2 pressure

bar: 4,2...4,8 1/min: 1100 3rd speed

Supply-pump

bar: 5,2...6,0 pressure

Overflow quantity at overflow valve:		
1st speed		
Delivery-quant. and breakaway char.:		
1st speed 1/min: 1300 Del.quantity cm3/: 0,03,0 1000H.: (0,03,0) 2nd speed 1/min: 1270 Del.quantity cm3/: 0,010,0 1000H.: (0,010,0) 3rd speed 1/min: 1220 Del.quantity cm3/: 10,040,0 1000H.: (10,040,0) 4th speed 1/min: 1190 Del.quantity cm3/: 52,058,0 1000H.: (50,559,5) 5th speed 1/min: 1000 Del.quantity cm3/: 82,285,2 1000H.: (80,786,7) 6th speed 1/min: 800 Del.quantity cm3/: 80,781,7 1000H.: (78,783,7) 7th speed 1/min: 500 Del.quantity cm3/: 76,780,7 1000H.: (75,282,2)		
Zero delivery (stop):		
Mech. shutoff:		
Speed 1/min: 1150 Del.quantity cm3/: 03 1000H.: -		
Idle delivery:		
1st speed 1/min: 350 Del.quantity cm3/: 16,520,5		
Automatic starting fuel delivery:		
1st speed 1/min: 350 Del.quantity cm3/: - ind. 1000H: 80,0		
2nd speed 1/min: 450 Del.quantity cm3/: - max. 1000H: 80,0		

C05

Note inst. in remarks column

: FOR 2,5 B : 18.11.88 Test sheet Edition

replaces

Calibrating oil : ISO 4113

: VE 4/11F2000 R288 Injection pump : 0 460 414 051 Type number

Customer-specific information

Customer : FORD

: 2,5 DI Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 023 assembly

Opening

bar: 172...175 pressure

Perforated-plate

mm : 0.4 diameter

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 mm: 450 x Length

Start of delivery Prestroke mm : -(from BDC): -

Start of delivery block mm: 0,55 Piston stroke mm: +-0.05

Outlet : B

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: -Setting value mm: -

006

Supply-pump pressure:

Speed 1/min: 1250 Setting value bar: 5,6...6,2

Full-load del. w/out charge press.:

1/min : 500 Speed

Del.quantity cm3/

1000H.: 30,5...31,5

Low-idle speed regulation:

1/min: 425 Speed

Del.quantity cm3/ 1000H.: 14,0...18,0

Full-load speed regulation:

1/min: 2100 Speed

Del.quantity cm3/

1000H: 29,5...33,5

Start:

Speed 1/min: 100 Del.quantity

cm3/1000H.: 62,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: -1st speed TD travel mm: -

mm: -1/min: -

2nd speed TD travel mm: mm: -

3rd speed 1/min: mm: _ TD travel

mm: _ 1/min: _ 4th speed TD travel

mm: _ mm: _

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 3,1...3,7 1/min: 1000 pressure 2nd speed

Supply-pump

bar: 4,8...5,4 1/min: 1250 pressure

3rd speed Supply-pump

bar: 5,6...6,2 pressure

4th speed 1/min: 1950 Supply-pump bar: 7,7...8,3 pressure Overflow quantity at overflow valve: 1st speed 1/min: 500 Oveflow : 41...83 cm3/10s: (26...98) quantity 2nd speed 1/min: 1950 Overflow : 55...138 quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1st speed 1/min: 1950 mm: 10,0 cm3/: 37,0...40,6 HBA stroke Del.quantity 1000H.: (36,3...41,3) 1/min: 2350 2nd speed Del.quantity cm3/: 0,0...10,0 1000H.: -1/min: 2200 3rd speed Del.quantity cm3/: 17,0...25,0 1000H.: (15,0...27,0) 4th speed 1/min: 2100 Del.quantity cm3/: 29,5...33,5 1000H.: (26,5...36,5) 5th speed 1/min: 1950 Del.quantity cm3/: 37,0...40,6 1000H.: (36,3...41,3) 6th speed 1/min: 1700 Del.quantity cm3/: 36,7...40,3 1000H.: (36,0...41,0) 1/min: 1000 7th speed 7th speed 7/11/11. 1000 Del.quantity cm3/: 33,8...34,8 1000H.: (31,8...36,8) 8th speed 1/min: 500 Del.quantity cm3/: 30,5...31,5 1000H: (26,0...36,0) Zero delivery (stop): Electr. shutoff: Speed 1/min: 425 ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1st speed 1/min: 425 Del.quantity cm3/: 14,0..18,0 1000H.: (12,0..20,0) 2nd speed 1/min: 500 Del.quantity cm3/: 7,5...15,5 1000H.: (5,5...17,5)

Automatic starting fuel delivery:

1st speed 1/min: 300 Del.quantity cm3/: ind. 1000H: 30,0

2nd speed 1/min: 480 Del.quantity cm3/: - max. 1000H: 34,0

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

: 3,2...3,4 K KF mm : K-0T MS : 1,0...1,4 mm : 3,8 : 17,0...19,0 SVS max. mm XK mm : 10,9...14,5 XL mm

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test sheet : FOR 2,5 C Edition : 18.11.88 replaces Calibrating oil : ISO 4113 Injection pump : VE 4/11F2000 I Type number : 0 460 414 052 : VE 4/11F2000 R288-1 Customer-specific information Customer : FORD : 2,5 DI Engine TEST BENCH REQUIREMENTS Calibrating-oil return temp. °C with thermometer: 40...48 electronically : 42...50 Inlet press., bar: 0,35 Calibrating nozzle-holder : 1 688 901 023 assembly Opening bar: 172...175 pressure Perforated-plate diameter mm : 0.4Test inj. tubing : 1 680 750 073 Outside diameter : 6 x Wall thickness : 2 mm : 450 x Length Start of delivery Prestroke mm: -(from BDC): -Start of delivery block mm: 0,55 Piston stroke mm: +-0.05Outlet : B Injection pump setting values Test specifications in parentheses

```
Supply-pump pressure:
             1/min: 1250
Setting value bar: 5,6...6,2
Full-load del. w/out charge press.:
             1/min : 500
Speed
Del.quantity cm3/
1000H.: 30,5...31,5
Low-idle speed regulation:
Speed
              1/min: 425
Del.quantity cm3/
1000H.: 16,0...20,0
Full-load speed regulation:
              1/min: 2100
Speed
Speed Del.quantity cm3/ 1000H: 30,5...34,5
Dispersion
              cm3/: 3,0
             1000H.: (4,0)
Start:
             1/min: 100
Speed
Del.quantity
mind cm3/1000H.: 62,0
Inspection-pump test specifications
Test specifications in parentheses
Timing-device characteristic:
              1/min: -
1st speed
TD travel
                 mm: -
                 mm: -
2nd speed
              1/min: -
TD travel
                 mm:
                 mm: -
              1/min: -
3rd speed
TD travel
                 mm: _
                 mm:
4th speed
              1/min:
TD travel
                 mm:
                 mm: _
Supply-pump pressure characteristic:
1st speed
              1/min: 500
Supply-pump
              bar: 3,1...3,7
1/min: 1000
pressure
2nd speed
Supply-pump
                bar: 4,8...5,4
pressure
```

1/min: 1250

3rd speed

Speed

Timing-device travel:

Setting value mm: -

1/min: -

Supply-pump bar: 5,6...6,2 1/min: 1950 pressure 4th speed Supply-pump bar: 7,7...8,3 pressure Overflow quantity at overflow valve: 1st speed Oveflow 1/min: 500 : 41...83 cm3/10s: (26...98) quantity 1/min: 1950 2nd speed : 55...138 Overflow quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1/min: 1950 1st speed HBA stroke mm: 10,0 Del.quantity cm3/: 37,0...40,6 1000H.: (36,3...41,3) 2nd speed 1/min: 2350 Del.quantity cm3/: 0,0...10,0 1000H.: -1/min: 2200 3rd speed 3rd speed 1/min: 2200
Del.quantity cm3/: 17,0...25,0
1000H.: (15,0...27,0)
4th speed 1/min: 2100
Del.quantity cm3/: 30,5...34,5
1000H.: (27,5...37,5)
5th speed 1/min: 1950
Del.quantity cm3/: 37,0...40,6
1000H.: (36,3...41,3)
6th speed 1/min: 1700
Del.quantity cm3/: 37,7...41,3
1000H.: (37,0...42,0)
7th speed 1/min: 1000 1/min: 1000 7th speed Del.quantity cm3/: 34,8...35,8 1000H.: (32,8...37,8) 1/min: 500 8th speed Del.quantity cm3/: 30,5...31,5 1000H: (26,0...36,0) Zero delivery (stop): Electr. shutoff: 1/min: 425 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 1000H.: -Idle delivery: 1/min: 425 1st speed Del.quantity cm3/: 16,0..20,0 1000H.: (14,0..22,0) 2nd speed 1/min: 500

Del.quantity cm3/: 7,5...15,5 1000H.: (5,5...17,5) Arrangement of drivers on enginespeed lever for exhaust-gasrecirculation valve linkage (guage) 1st speed 1/min: 1250 Del.quantity cm3/: 23,0..24,0 1000H.: (21,0..26,0) Automatic starting fuel delivery: 1/min: 300 1st speed Del.quantity cm3/: -1000H: 30,0 ind. 2nd speed 1/min: 480 Del.quantity cm3/: - max. 1000H: 34,0 Shutoff electromagnet: Cut-in : 10,0 min. voltage Rated voltage : 12,0 Mounting and assembly dimensions: Designation mm : 3,2...3,4K KF : K-OT mm : 1,0...1,4 MS mm mm : 3,8 mm : 17,0...19,0 SVS max. XK XL : 10,9...14,5 mm Remarks:

Note inst. in remarks column

: FOR 2,5 D Test sheet Edition : 18.11.88

replaces

Calibrating oil : ISO 4113

: VE 4/11F2000 R288-2 Injection pump

: 0 460 414 055 Type number

Customer-specific information

Customer : FORD

: 2,5 DI Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 023 assembly

Opening

bar: 172...175 pressure

Perforated-plate

diameter mm : 0.4

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 mm : 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Start of delivery block mm: 0,55 Piston stroke mm: +-0.05

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: -Setting value mm: - Supply-pump pressure:

1/min: 1250 Setting value bar: 5,6...6,2

Full-load del. w/out charge press.:

1/min : 500 Speed

Del.quantity cm3/ 1000H.: 30,5...31,5

Low-idle speed regulation:

1/min: 425 Speed

Del.quantity cm3/ 1000H.: 14,0...18,0

Full-load speed regulation:

Speed 1/min: 2100

Del.quantity cm3/

1000H: 29,5...33,5

Start:

1st speed

Speed 1/min: 100 Del.quantity mind cm3/1000H.: 62,0

Inspection-pump test specifications Test specifications in parentheses

1/min: -

Timing-device characteristic:

TD travel mm: mm: -1/min: -2nd speed TD travel mm: mm: -

1/min: -3rd speed TD travel mm: mm:

4th speed 1/min: TD travel mm:

mm: _

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump

bar: 3,1...3,7 1/min: 1000 pressure 2nd speed

Supply-pump

bar: 4,8...5,4 pressure 1/min: 1250 3rd speed

Supply-pump

bar: 5,6...6,2 pressure

C10

1/min: 1950 4th speed Supply-pump bar: 7,7...8,3 pressure Overflow quantity at overflow valve: 1/min: 500 1st speed Oveflow : 41...83 cm3/10s: (26...98) quantity 2nd speed 1/min: 1950 Overflow : 55...138 quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1st speed 1/min: 1950 mm: 10,0 HBA stroke Del.quantity cm3/: 37,0...40,6 1000H:: (36,3...41,3)
2nd speed 1/min: 2350
Del.quantity cm3/: 0,0...10,0
1000H:: -3rd speed 1/min: 2200 Del.quantity cm3/: 17,0...25,0 1000H.: (15,0...27,0) 4th speed 1/min: 2100 Del.quantity cm3/: 29,5...33,5 1000H.: (26,5...36,5) 1/min: 1950 5th speed Del.quantity cm3/: 37,0...41,3) 6th speed 1/min: 1700
Del.quantity cm3/: 36,7...40,3
1000H.: (36,0...41,0)
7th speed 1/min: 1900
Del.quantity cm3/: 33,8...34,8
1000H.: (31,8...36,8) 1/min: 500 8th speed Del.quantity cm3/: 30,5...31,5 1000H: (26,0...36,0) Zero delivery (stop): Electr. shutoff: 1/min: 425 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1st speed 1/min: 425 Del.quantity cm3/: 14,0..18,0 1000H.: (12,0..20,0) 2nd speed 1/min: 500 Del.quantity cm3/: 7,5...15,5 1000H.: (5,5...17,5)

Arrangement of drivers on enginespeed lever for exhaust-gasrecirculation valve linkage (guage)

1st speed 1/min: 1250 Del.quantity cm3/: 23,0..24,0 1000H.: (21,0..26,0)

Automatic starting fuel delivery:

1st speed 1/min: 300 Del.quantity cm3/: ind. 1000H: 30,0

Shutoff electromagnet:

Cut-in min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

: 3,2...3,4 Κ mm KF : K-0T mm : 1,0...1,4 MS mm : 3,8 : 17,0...19,0 : 10,9...14,5 SVS max. mm XK mm XL mm

Remarks:

Note inst. in remarks column

: FOR 2,5 E Test sheet Edition : 18.11.88

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/11F2000 R288-3

Type number : 0 460 414 062

Customer-specific information

Customer : FORD

Engine : 2,5 DI

TEST BENCH REQUIREMENTS

Calibrating-oil o C return temp.

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 023 assembly

Opening |

bar: 172...175 pressure

Perforated-plate

diameter mm : 0.4

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 mm : 450 x Length

Start of delivery Prestroke mm : -(from BDC): -

Start of delivery block mm: 0,55 Piston stroke mm: +-0.05

Outlet : B

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: -Setting value mm: - Supply-pump pressure:

1/min: 1250 Speed Setting value bar: 5,6...6,2

Full-load del. w/out charge press.:

1/min : 500

Del.quantity cm3/

1000H.: 30,5...31,5

Low-idle speed regulation:

Speed 1/min: 425

Del.quantity cm3/ 1000H.: 14,0...18,0

Full-load speed regulation:

1/min: 2100 Speed

Del.quantity cm3/

1000H: 29,5...33,5

Start:

1/min: 100 Speed

Del.quantity

cm3/1000H.: 62,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: -1st speed TD travel mm: -

mm: -

2nd speed 1/min: -TD travel mm: -

mm: -

3rd speed 1/min: -TD travel

mm: _ mm:

4th speed 1/min: TD travel mm:

mm: _

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 3,1...3,7 1/min: 1000 pressure

2nd speed

Supply-pump

bar: 4,8...5,4 1/min: 1250 pressure

3rd speed

Supply-pump

bar: 5,6...6,2 pressure

C12

1/min: 1950 4th speed Supply-pump bar: 7,7...8,3 pressure Overflow quantity at overflow valve: 1/min: 500 1st speed Oveflow : 41...83 cm3/10s: (26...98) quantity 1/min: 1950 2nd speed Overflow 55...138 quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1st speed 1/min: 1950 mm: 10,0 HBA stroke cm3/: 37,0...40,6 Del.quantity 1000H.: (36,3...41,3) 1/min: 2350 2nd speed Del.quantity cm3/: 0,0...10,0 1000H.: -3rd speed 1/min: 2200
Del.quantity cm3/: 17,0...25,0
1000H.: (15,0...27,0)
4th speed 1/min: 2100
Del.quantity cm3/: 29,5...33,5
1000H.: (26,5...36,5) 1/min: 1950 5th speed Del.quantity cm3/: 3/,0...41,3) 1000H.: (36,5...41,5) 6th speed 1/min: 1700 Del.quantity cm3/: 36,7...40,3 1000H.: (36,0...41,0) 7th speed 1/min: 1000 Del.quantity cm3/: 33,8...34,8 1000H.: (31,8...36,8) 1/min: 500 8th speed Del.quantity cm3/: 30,5...31,5 1000H: (26,0...36,0) Zero delivery (stop): Electr. shutoff: 1/min: 425 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 1000H.: -Idle delivery: 1/min: 425 1st speed Del.quantity cm3/: 14,0..18,0 1000H.: (12,0..20,0) 2nd speed 1/min: 500 Del.quantity cm3/: 7,5...15,5 1000H.: (5,5...17,5)

Arrangement of drivers on enginespeed lever for exhaust-gasrecirculation valve linkage (guage) 1st speed 1/min: 1250 Del.quantity cm3/: 23,0..24,0 1000H.: (21,0..26,0) Automatic starting fuel delivery: 1/min: 300 1st speed Del.quantity cm3/: -1000H: 30,0 ind. 1/min: 480 2nd speed Del.quantity cm3/: - max. 1000H: 34,0 Shutoff electromagnet: Cut-in min. voltage : 12,0 Rated voltage Mounting and assembly dimensions: Designation : 3,2...3,4 mm KF : K-0T mm : 1,0...1,4 MS mm : 3/8 : 17,0...19,0 : 10,9...14,5 SVS max. mm XK mm XL mm

Remarks:

Note inst. in remarks column

Test sheet : FIA 3,6L Edition : 07.11.88

replaces

Calibrating oil : ISO 4113

: VE 4/11F1350 R257-1 Injection pump

: 0 460 414 064 Type number

Customer Part-No. :

Customer-specific information Customer : IVECO-FIAT

: 8040.25.207+ Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar: 172...175 pressure

Perforated-plate

diameter mm: 0.6

Test ini. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Start of delivery

Prestroke mm: 0,4

(from BDC): + 0.02(0.04)

Indicator setting:

Piston stroke mm: 1.0 Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1000 Speed

Charge press. hPa: 1000 Setting value mm: 2,2...2,6

Supply-pump pressure:

Speed 1/min: 1000 Charge press. hPa: 1000 Setting value bar: 4,9...5,5

Full-load del. with charge press.:

Speed 1/min: 800 Charge press. hPa: 1000

Del.quantity cm3/ 1000H:: 97,0...98,0 Dispersion cm3/: 5,0 1000H: (5,0)

Full-load del. w/out charge press.:

 $1/\min : 500$ Speed Del.quantity cm3/

1000H.: 68,5...69,5

Low-idle speed regulation:

1/min: 350 Speed

Del.quantity cm3/ 1000H.: 22,0...26,0 Dispersion cm3/: 3,5 1000H.: (4,0)

Full-load speed regulation:

1/min: 1500 Speed Charge press. hPa: 1000

Del.quantity cm3/

1000H: 34,0...40,0

Start:

Speed

1/min: 100 : 85,0...125,0 Del.quantity

cm3/1000H.: 85,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 850 Charge press. hPa: 1000 TD travel mm: 0,5...1,3 mm: (0,2...1,6)

1/min: 1000 2nd speed

Charge press. hPa: 1000 TD travel mm: 2,2...2,6 mm: (1,7...3,1) 3rd speed 1/min: 1350

C14

Charge press. hPa: 1000 TD travel mm: 3,74,5 mm: (3,44,8)	Del.quantity cm3/: 90,093,0 1000H.: (88,594,5) 7th speed 1/min: 500
Supply-pump pressure characteristic:	Charge press. hPa: 250 Del.quantity cm3/: 81,082,0 1000H.: (78,584,5)
· · · · · · · · · · · · · · · · · · ·	1000H.: (78,584,5)
1st speed 1/min: 500 Charge press. hPa: 1000 Supply-pump	Sth speed 1/min: 500 Charge press. hPa: - Del.quantity cm3/: 68,569,5
pressure bar: $2,63,2$	1000H: (66,072,0)
pressure bar: 2,63,2 2nd speed 1/min: 850	·
Charge press. hPa: 1000	Zero delivery (stop):
Supply-pump +	, ,
pressure bar: 4,24,8	Mech. shutoff:
3rd speed 1/min: 1000	
Charge press. hPa: 1000	Speed 1/min: 1350
Supply-pump +	Deliquantity cm3/: 03
proceure ban: / 0 5 5	1000H.: -
pressure bar: 4,95,5 4th speed 1/min: 1350	10001
Charac many 1000	Marka showers.
Charge press. hPa: 1000	Electr. shutoff:
Supply-pump +	A
pressure bar: 6,57,1	Speed 1/min: 350
<u> </u>	ELAB volt: -
Overflow quantity at overflow valve:	Del.quantity_cm3/: 0,03,0
+	max. 1000H.: -
1st speed	
Charge press. hPa: 1000	Idle delivery:
Oveflow : 4183 +	•
quantity cm3/10s: (2698)	1st speed 1/min: 350
2nd speed 1/min: 1350	Del quantity cm3/: 22.0 26.0
Charge press. hPa: 1000	Del.quantity cm3/: 22,026,0 1000H.: (19,029,0)
Overflow : 55138	2nd speed 1/min: 400
quantity cm3/10s: (40153)	Del.quantity cm3/: 2,59,5
quantity chis/ 105. (40155)	1000H.: (2,59,5)
Politican Laurent and brookers, oben	7nd annual 4/min. (2,37,3)
Delivery-quant. and breakaway char.:	3rd speed 1/min: 430
1 44: 500	Del.quantity_cm3/: 0,03,0
1st speed 1/min: 500	1000H.: (0,03,0)
Charge-air pressure-setting +	
point hPa: 250 +	Automatic starting fuel delivery:
Del.quantity cm3/: 81,082,0 +	
1000H.: (78,484,5) +	1st speed 1/min: 150
2nd speed 1/min: 1600 +	Del.quantity cm3/: 90,0130,0
Charge press. hPa: 1000	ind. 1000H: 90,0
Del.quantity cm3/: 0,03,0 +	
1000H.: (0,03,0) +	2nd speed 1/min: 250
3rd speed	Del.quantity cm3/: 41,056,0
Charge press. hPa: 1000	max. 1000H : 56,0
Del.quantity cm3/: 34,040,0 +	
1000H.: (31,043,0)	Shutoff electromagnet:
4th speed 1/min: 1350 +	onacott cedoctomagnee.
Charge press. hPa: 1000	Cut-in
Del.quantity cm3/: 93,596,5	min. voltage : 20,0
1000H.: (92,098,0)	
1000Π.: (72,070,0) 5+h anoad 1/min. 200	Rated voltage : 24,0
5th speed 1/min: 800	Mayoting and seconds of discussions
Charge press. hPa: 1000	Mounting and assembly dimensions:
Del.quantity_cm3/: 97,098,0	No all amount local
1000H.: (94,0100,5) +	Designation
6th speed 1/min: 500 +	K mm : -
Charge press. hPa: 1000 +	$KF \qquad mm : 5,15,5$
+	$MS \qquad mm : 1,21,6$

XK XL mm : 17,0...19,0 mm : 14,2...17,6

Remarks:

: Correction at adjusting nut (46)

C16

Note inst. in remarks column

: VOL 4,1E : 03.08.88 Test sheet Edition : 08.12,86 : ISO 4113 replaces Calibrating oil

Injection pump : VE 6/11F1625 L218-4

Type number : 0 460 416 054

Customer-specific information : VOLVO-PENTA Customer

Engine : TAMD 41 125

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 mm: 450 x Length

Start of delivery

Prestroke mm: 0,3 (from BDC): +-0.02

Indicator setting:

Piston stroke mm: 1.0 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1200 Charge press. hPa: 1000 Setting value mm: 3,9...4,3

Supply-pump pressure:

1/min: 1200 Charge press. hPa: 1000

Setting value bar: 6,1...6,7

Full-load del. with charge press.:

Speed 1/min: 1500 Charge press. hPa: 1000

Del.quantity cm3/ 1000H.: 80,0...81,0

cm3/:5,0Dispersion 1000H : (5,0)

Full-load del. w/out charge press.:

Speed $1/\min : 600$

Del.quantity cm3/ 1000H.: 63,5...64,5

Low-idle speed regulation:

1/min: 350

Del.quantity cm3/ 1000H.: 15,5...19,5 Dispersion cm3/: 3,5

1000H.: (3,5)

Full-load speed regulation:

1/min: 1900 Charge press. hPa: 1000

Del.quantity cm3/ 1000H: 29,5...35,5

Start:

1/min: 100 Speed Del.quantity mind cm3/1000H.: 85,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 800 1st speed

Charge press. hPa: 1000 TD travel mm: 1,0...1,8 mm: (0,7...2,1)

1/min: 1200 2nd speed

Charge press. hPa: 1000 TD travel

mm: 3,9...4,3 mm: (3,4...4,8)

1/min: 1400 3rd speed Charge press. hPa: 1000

mm: 4,5...5,3 mm: (4,2...5,6) TD travel

Supply-pump pressure characteristic:

	+	Del.quantity cm3/: 63,564,5
1st speed 1/min: 500	+	1000H: (61,067,0)
Charge press. hPa: 1000	+	
Supply-pump	+	Zero delivery (stop):
pressure bar: 4,75,3 2nd speed 1/min: 1200	+	Mach aboutafif.
Charge press. hPa: 1000	Ī	Mech. shutoff:
Supply-numn	I	Speed 1/min: 1625
pressure bar: 6,16,7	1	Del.quantity cm3/: 03
3rd speed 1/min: 1625	+	1000H.: -
Charge press. hPa: 1000	+	
Supply-pump	+	Electr. shutoff:
pressure bar: 7,37,9	+	0
Overflow quantity at evenflow valve:	Ť	Speed 1/min: 350 ELAB volt: 12,0
Overflow quantity at overflow valve:	I	Nel quantity cm3/: 0 0 3 0
1st speed 1/min: 600	1	Del.quantity cm3/: 0,03,0 max. 1000H.: -
Charge press. hPa: 1000	1	max.
Oveflow : 4183	+	Idle delivery:
quantity cm3/10s: (2698)	+	·
2nd speed 1/min: 1625	+	1st speed
Charge press. hPa: 1000	†	Del.quantity cm3/: 15,519,5 1000H.: (12,522,5)
Overflow : 55138 quantity cm3/10s: (40153)	Ť	2nd speed 1/min: 400
ddantity clip/105. (40155)	I	Del quantity cm3/: 3.0 9.0
Delivery-quant. and breakaway char.:	+	Del.quantity cm3/: 3,09,0 1000H.: (1,510,5)
The state of the s	1	3rd speed 1/min: 450
1st speed 1/min: 800	+	Del.quantity cm3/: 0,03,0
Charge-air pressure-setting	+	1000H.: (0,03,0)
point hPa: 260	+	A. A. A 6.2
LDA stroke mm: 7,5	†	Automatic starting fuel delivery:
Del.quantity cm3/: 71,572,2 1000H.: (69,075,0)	I	1st speed 1/min: 300
2nd speed 1/min: 1975	1	Del.quantity cm3/: -
Charge press. hPa: 1000	+	Del.quantity cm3/: - ind. 1000H: 85,0
Del.quantity cm3/: 7.016.0	+	
1000H.: (6,017,0)	+	2nd speed 1/min: 500
3rd speed 1/min: 1900	+	Del.quantity cm3/: -
Charge press. hPa: 1000	†	max. 1000H: 80,0
Del.quantity cm3/: 29,535,5 1000H.: (28,536,5)	Ī	Shutoff electromagnet:
5th speed 1/min: 1625	I	ordrorr etectromagnet.
Charge press. hPa: 1000	1	Cut-in
Del.quantity cm3/: 76,079,0	+	min. voltage : 10,0
1000H.: (73,581,5)	+	Rated voltage : 12,0
6th speed	+	
Charge press. hPa: 1000	†	Mounting and assembly dimensions:
Del.quantity cm3/: 80,081,0 1000H.: (78,282,8)	Ī	Designation
7th speed 1/min: 800	I	K mm:-
Charge press. hPa: 1000	1	KF mm : -
Del.quantity cm3/: 84,087,0	+	MS mm : 1,11,5
1000H.: (82,588,5)	+	SVS max. mm : -
8th speed 1/min: 800	+	XK mm : 18,820,8
Charge press. hPa: 260	†	XL mm : 12,215,6
Del.quantity cm3/: 71,572,5	†	Domanka
1000H: (69,075,0) 9th speed	Ī	Remarks: Correction at adjusting nut (46)
Charge press. hPa: -	I	correction at adjusting nut (40)
WITH THE PICCOL TILLS	1	

Note inst. in remarks column

Test sheet : VOL 4,1F : 08.11.88 Edition : 08.12,86 : ISO 4113 replaces Calibrating oil

Injection pump : VE 6/11F1625 L218-5

Type number : 0 460 416 055

Customer-specific information Customer : VOLVO-PENTA

: TAMD 41 125 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6 x Wall thickness : 2 mm : 450 x Length

Start of delivery

Prestroke

e mm: 0,3 (from BDC): +-0,02 (0,04)

Indicator setting: Piston stroke mm: 1.0

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1200 Charge press. hPa: 1000 Setting value mm: 3,9...4,3

Supply-pump pressure:

1/min: 1200 Speed Charge press. hPa: 1000 Setting value bar: 6,1...6,7

Full-load del. with charge press.:

1/min: 1500 Charge press. hPa: 1000

Del.quantity cm3/ 1000H.: 80,0...81,0 Dispersion cm3/: 5,0 1000H : (5,0)

Full-load del. w/out charge press.:

Speed 1/min : 600

Del.quantity cm3/ 1000H.: 63,5...64,5

Low-idle speed regulation:

Speed 1/min: 350

Del.quantity cm3/ 1000H.: 15,5...19,5 Dispersion cm3/: 3,5

1000H.: (3,5)

Full-load speed regulation:

1/min: 1900 Speed Charge press. hPa: 1000 Del.quantity cm3/ 1000H: 29,5...35,5

Start:

1/min: 100 Speed Del.quantity mind cm3/1000H.: 85,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800 Charge press. hPa: 1000

TD travel mm: 1,0...1,8mm: (0,7...2,1)

1/min: 1200 2nd speed Charge press. hPa: 1000

TD travel mm: 3,9...4,3 mm: (3,4...4,8)

3rd speed 1/min: 1400
Charge press. hPa: 1000

mm: 4,5...5,3 mm: (4,2...5,6) TD travel

Supply-pump pressure characteristic:

	+ Del.quantity cm3/: 63,564,5
1st speed 1/min: 500 Charge press. hPa: 1000	1000H: (61,067,0)
Supply-pump pressure bar: 4,75,3	Zero delivery (stop):
2nd speed 1/min: 1200 Charge press. hPa: 1000	Mech. shutoff:
Supply-pump pressure bar: 6,16,7 3rd speed 1/min: 1625	+ Speed 1/min: 1625 + Del.quantity cm3/: 03 + 1000H.: -
Charge press. hPa: 1000 Supply-pump pressure bar: 7,37,9	Electr. shutoff:
Overflow quantity at overflow valve:	+ Speed 1/min: 350 + ELAB volt: 24,0
1st speed 1/min: 600	Del.quantity cm3/: 0,03,0 max. 1000H.: -
Charge press. hPa: 1000 Oveflow: 4183 quantity cm3/10s: (2698)	Idle delivery:
2nd speed	1st speed 1 min: 350 Del.quantity cm3/: 15,519,5
Overflow : 55138 quantity cm3/10s: (40153)	+ 1000H.: (12,522,5) + 2nd speed 1/min: 400
Delivery-quant. and breakaway char.:	+ Del.quantity cm3/: 3,09,0 + 1000H.: (1,510,5) + 3rd speed 1/min: 450
1st speed 1/min: 800 Charge-air pressure-setting point hPa: 260	Del.quantity cm3/: 0,03,0 1000H.: (0,03,0)
LDA stroke mm: 7.5	Automatic starting fuel delivery:
Del.quantity cm3/: 71,572,2 1000H.: (69,075,0) 2nd speed 1/min: 1975 Charge press. hPa: 1000	+ 1st speed 1/min: 300 - Del.quantity cm3/: - - ind. 1000H: 85,0
Del.quantity cm3/: 7,016,0 1000H.: (5,517,5)	+
4th speed 1/min: 1900 Charge press. hPa: 1000 Del.quantity cm3/: 29,535,5	+ Del.quantity cm3/: - + max. 1000H: 80,0
1000H.: (28,536,5) 5th speed 1/min: 1625	Shutoff electromagnet:
Change anger box 1000	+ Cut-in + min. voltage : 20,0 + Rated voltage : 24,0
6th speed 1/min: 1500 Charge press. hPa: 1000 Del.quantity cm3/: 80,081,0	min. voltage : 20,0 Rated voltage : 24,0 Mounting and assembly dimensions: Designation K mm : - KF mm : 5,15,5 MS mm : 1,11,5 SVS max. mm : 3,8 Remarks: Correction at adjusting nut (46)
1000H.: (78,282,8) 7th speed	Designation
Del.quantity cm3/: 84,087,0 1000H.: (82,588,5)	+ KF
8th speed 1/min: 800 Charge press. hPa: 260 Del.quantity cm3/: 71,572,5	Remarks: Correction at adjusting nut (46)
1000H: (69,075,0) 9th speed 1/min: 600	torrection at adjusting his (40)
Charge press. hPa: -	<u>†</u>

Note inst. in remarks column

: VOL 4,1H Test sheet : 08.11.88 Edition

replaces

Calibrating oil : ISO 4113

: VE 6/11F1800 L218-7 Injection pump

Type number : 0 460 416 062

Customer Part-No. :

Customer-specific information Customer : VOLVO-PENTA

Engine : AQAD 41 MD

Power k: 120

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar: 130...133 pressure

Test inj. tubing : 1 680 750 073

Outside diameter x Wall thickness : 2 x Length mm: 450

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1200 Charge press. hPa: 1000 Setting value mm: 3,9...4,3

Supply-pump pressure:

Speed 1/min: 1200 Charge press. hPa: 1000 Setting value bar: 6,0...6,6

Full-load del. with charge press.:

1/min: 1500 Charge press. hPa: 1000

Del.quantity cm3/ 1000H: 74,5...75,5 Dispersion cm3/: 5,0 1000H: (5,0)

Full-load del. w/out charge press.:

1/min: 650 Speed

Del.quantity_cm3/

1000H.: 63,0...64,0

Low-idle speed regulation:

Speed 1/min: 350

Del.quantity cm3/ 1000H.: 15,5...19,5 Dispersion cm3/: 3,5 1000H.: (3,5)

Full-load speed regulation:

1/min: 2000 Speed Charge press. hPa: 1000

Del.quantity cm3/

1000H: 34,0...40,0

Start:

1/min: 100 Speed

Del.quantity : 85,0...115,0

cm3/1000H.: 85,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 800 1st speed Charge press. hPa: 1000

TD travel mm: 0,9...1,7

mm: (0,6...2,0) 1/min: 1200

2nd speed Charge press. hPa: 1000

TD travel mm: 3,9...4,3

mm: (3,4...4,8)

1/min: 1400 3rd speed Charge press. hPa: 1000

TD travel

mm: 4,5...5,3 mm: (4,2...5,6)

Supply-pump pressure characteristic:

1/min: 800 1st speed Charge press. hPa: 1000

Supply-pump pressure bar: 5,05,6 2nd speed 1/min: 1200 Charge press. hPa: 1000	Speed 1/min: 1800 Del.quantity cm3/: 03 1000H.: -
Supply-pump pressure bar: 6,06,6 3rd speed 1/min: 1800 Charge press. hPa: 1000 Supply-pump	Electr. shutoff: Speed 1/min: 350 ELAB volt: 12,0 Del.quantity_cm3/: 0,03,0
pressure bar: 7,48,0	max. 1000H.: -
Overflow quantity at overflow valve:	Idle delivery:
1st speed 1/min: 650 Oveflow : 4183 quantity cm3/10s: (2698) 2nd speed 1/min: 1800 Charge press. hPa: 1000 Overflow : 55138 quantity cm3/10s: (40153) Delivery-quant. and breakaway char.:	1st speed 1/min: 350 Del.quantity cm3/: 15,519,5 1000H.: (12,522,5) 2nd speed 1/min: 400 Del.quantity cm3/: 3,09,0 1000H.: (1,510,5) 3rd speed 1/min: 450 Del.quantity cm3/: 0,03,0 1000H.: (0,03,0)
1st speed 1/min: 2130 -	+ Automatic starting fuel delivery
Charge—air pressure—setting - point hPa: 1000 - Del.quantity cm3/: 0,03,0 - 1000H.: (0,03,0) - 2nd speed 1/min: 2050 -	1st speed
Charge press. hPa: 1000 - Del.quantity cm3/: 3,013,0 - 1000H.: (3,013,0) - 3rd speed 1/min: 2000 -	2nd speed 1/min: 500 Del.quantity cm3/: 55,085,0 max. 1000H: 85,0
Charge press. hPa: 1000 - Del.quantity cm3/: 34,040,0 -	Shutoff electromagnet:
1000H.: (36,044,0) - 4th speed 1/min: 1800 - Charge press. hPa: 1000 -	Cut-in min. voltage : 10,0 Rated voltage : 12,0
Del.quantity cm3/: 71,074,0 - 1000H.: (69,076,0) - 1000H.: (69,076,0)	Mounting and assembly dimensions
5th speed 1/min: 1500 - Charge press. hPa: 1000 - Del.quantity cm3/: 74,575,5 - 1000H.: (72,777,3) - 6th speed 1/min: 900 - Charge press. hPa: 1000 -	Designation K mm : - KF mm : 5,25,5 MS mm : 1,21,4 SVS max. mm : 3,8
Del.quantity cm3/: 82,585,5 1000H.: (81,087,0) 7th speed 1/min: 900 Charge press. hPa: 300 Del.quantity cm3/: 68,569,5 1000H.: (66,072,0) 8th speed 1/min: 650 Del.quantity cm3/: 63,064,0 1000H: (60,566,5)	Remarks:
Zero delivery (stop):	
Mach shutoff.	

Note inst. in remarks column

: CUM 3,9 E Test sheet : 02.08.88 Edition replaces : 11.86 : ISO 4113 Calibrating oil

: VE 4/12F1100 R226 Injection pump Type number : 0 460 424 022

Customer-specific information

Customer : CDC

: 4 BT 390 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250...253 pressure

Perforated-plate

diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery

Prestroke mm: 0,3 (from BDC): +0.02

Start of delivery block Piston stroke mm: 1,8

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 900

Setting value mm: 2,3...2,7

Supply-pump pressure:

1/min: 900 Setting value bar: 4,1...4,7

Full-load del. w/out charge press.:

1/min: 900 Speed

Del.quantity cm3/ 1000H.: 65,5...66,5 Dispersion cm3/: 4,0

1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 335 Del.quantity cm3/

1000H.: 8,0...14,0 cm3/: 5,5 1000H.: (7,0) Dispersion

Full-load speed regulation:

1/min: 1150 Speed

Del.quantity cm3/

1000H: 53,0...59,0

Start:

Speed 1/min: 100 Del.quantity

mind cm3/1000H.: 70,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 750 1st speed

mm: 1,3...2,1 mm: (1,0...2,4) TD travel

1/min: 900 2nd speed

TD travel

mm: 2,3...2,7 mm: (1,8...3,2) 1/min: 1100

3rd speed

mm: 3,1...3,9 mm: (2,8...4,2) TD travel

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 2,3...2,9 pressure

1/min: 900 2nd speed

Supply-pump

bar: 4,1...4,7 1/min: 1100 pressure

3rd speed

C24

Supply-pump bar: 4,9...5,5 pressure Overflow quantity at overflow valve: 1/min: 500 1st speed Oveflow : 41...83 cm3/10s: (26...98) 1/min: 1100 quantity 2nd speed Overflow : 55...138 quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1/min: 1250 1st speed Del.quantity cm3/: 0,0...3,0 1000H.: (0,0...3,0) 2nd speed 1/min: 1220
Del.quantity cm3/: 0.0...15.0
1000H.: (0.0...15.0) 3rd speed 1/min: 1180 Del.quantity cm3/: 15,0...55,0 1000H.: (15,0...55,0) 1/min: 1150 4th speed Del.quantity cm3/: 53,0...59,0 1000H.: (50,0...62,0) 5th speed 1/min: 1100 Del.quantity cm3/: 63,5...66,5 1000H:: (62,0...68,0) 6th speed 1/min: 900 Del.quantity cm3/: 03/3....69,0) 1/min: 750 7th speed Del.quantity cm3/: 00,0....24,0) 1/min: 500 8th speed Del.quantity cm3/: 67,0...75,0 1000H: (65,0...77,0) Zero delivery (stop): Mech. shutoff: 1/min: 1100 Speed Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: 1/min: 335 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: max. Idle delivery: 1st speed 1/min: 335 Del.quantity cm3/: 8,0...14,0 1000H.: (6,0...16,0) 2nd speed 1/min: 500

Del.quantity cm3/: 0,0...4,0 1000H.: (0,0...4,0) Automatic starting fuel delivery: 1st speed 1/min: 130 Del.quantity cm3/: -1000H: 80,0 ind. 1/min: 240 2nd speed Del.quantity cm3/: -1000H: 80,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation K mm KF 5,0...5,4 mm : 1,1...1,5 MS

mm

mm

mm

mm

: 3,5

: 18,8...20,8

: 12,2...15,6

Remarks:

SVS max.

XK

XL

C25

Note inst. in remarks column

Test sheet Edition replaces : CUM 3,9E1 : 02.08.88 replaces : 11.86 Calibrating oil : ISO 4113

Injection pump : VE 4/12F1150 R226-1 Type number : 0 460 424 023

Customer-specific information

Customer : CDC

: 4 BT 390 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250...253 pressure

Perforated-plate

diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery

Prestroke mm: 0,3

(from BDC): +-0.02(0.06)

Start of delivery block Piston stroke mm: 1,8

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 900

Setting value mm: 2,0...2,4

Supply-pump pressure:

1/min: 900 Speed Setting value bar: 4,2...4,8

Full-load del. w/out charge press.:

1/min: 900 Speed

Del.quantity cm3/

1000H.: 67,0...68,0

cm3/: 4,0 Dispersion 1000H.: (4,5)

Low-idle speed regulation:

1/min: 375 Speed

Del.quantity cm3/ 1000H.: 8,0...14,0 Dispersion cm3/: 5,5 1000H.: (7,0)

Full-load speed regulation:

1/min: 1190 Speed

Del.quantity cm3/ 1000H: 47,0...53,0

Start:

1/min: 100 Speed Del.quantity

mind cm3/1000H.: 70,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750

mm: 0,8...1,6 TD travel

2nd speed

mm: (0,5...1,9)
1/min: 900
mm: 2,0...2,4
mm: (1,5...2,9)
1/min: 1150 TD travel

3rd speed

mm: 3,2...4,0 mm: (2,9...4,3) TD travel

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 2,5...3,1 1/min: 900 pressure

2nd speed

Supply-pump

bar: 4,2...4,8 1/min: 1150 pressure 3rd speed

C26

Supply-pump bar: 5,2...5,8 pressure Overflow quantity at overflow valve: 1st speed 1/min: 500 : 41...83 Oveflow cm3/10s: (26...98) 1/min: 1150 : 55...138 quantity 2nd speed Overflow quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1/min: 1300 1st speed cm3/: 0,0...3,0Del.quantity 1000h.: (0,0...3,0) 1/min: 1260 2nd speed Del.quantity cm3/: 0,0...15,0 1000H.: (0,0...15,0) 3rd speed 1/min: 1220 Del.quantity cm3/: 15,0...55,0 1000H.: (15,0...55,0) 4th speed 1/min: 1190 Del.quantity cm3/: 47,0...53,0 1000H.: (44,0...56,0) 1/min: 1150 5th speed Del.quantity cm3/: 63,5...66,5 1000H.: (62.0...68,0) 1/min: 900 6th speed Del.quantity cm3/: 67,0...68,0 1000H:: (64,5...70,5) 7th speed 1/min: 750 Del.quantity cm3/: 69,5...73,5 1000H.: (67,5...75,5) 8th speed 1/min: 500 Del.quantity cm3/: 68,0...76,0 1000H: (66,0...78,0) Zero delivery (stop): Mech. shutoff: 1/min: 1150 Speed Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: Speed 1/min: 375 ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: max. Idle delivery: 1/min: 375 1st speed Del.quantity cm3/: 8,0...14,0 1000H.: (6,0...16,0)

1/min: 500

Del.quantity cm3/: 0,0...4,0 1000H.: (0,0...4,0) Automatic starting fuel delivery: 1st speed 1/min: 130 Del.quantity cm3/: -1000H: 80,0 ind. 2nd speed 1/min: 240 Del.quantity cm3/: - max. 1000H: 80,0 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation Κ mm 5,0...5,4 KF mm : 1,1...1,5 MS mm : 4,0 SVS max. mm Remarks:

2nd speed

Note inst. in remarks column

: CUM 3,9 N8 Test sheet : 08.11.88 Edition : 08.07.87 replaces Calibrating oil : ISO 4113

: VE 4/12F1150 R231-1 : 0 460 424 029 Injection pump

Type number

Customer Part-No.: 390 8196

Customer-specific information

Customer

Engine : 4 BTA 3.9

k: 82 Power 1/mi: 2200 Speed

TEST BENCH REQUIREMENTS

Calibrating oil return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

bar: 250...253 pressure

Perforated-plate

mm : 0.5 diameter

Test inj. tubing : 1 688 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery

Prestroke mm: 0,3

(from BDC): +0,02(0,06)

Start of delivery block Piston stroke mm: 1,55

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses Timing-device travel:

1/min: 750 Speed Charge press. hPa: 1000 Setting value mm: 3,8...4,2

Supply-pump pressure:

1/min: 750 Charge press. hPa: 1000 Setting value bar: 5,1...5,7

Full-load del. with charge press.:

1/min: 850 Speed Charge press. hPa: 1000

Del.quantity cm3/ 1000H.: 85,5...86,5

cm3/:4.0Dispersion 1000H : -

Full-load del. w/out charge press.:

 $1/\min : 500$ Speed Del.quantity cm3/

1000H.: 66,5...67,5

Low-idle speed regulation:

1/min: 375 Speed

Del.quantity cm3/

1000H.: 8,0...14,0

cm3/: 5,5 Dispersion

1000H.: -

Full-load speed regulation:

1/min: 1170 Speed Charge press. hPa: 1000

Del.quantity cm3/ 1000H: 63,0...69,0

Start:

Speed 1/min: 100 Del.quantity cm3/1000H.: 60,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 500 1st speed

Charge press. hPa: 1000 TD travel mm: 2,2...3,0 mm: (1,9...3,3)

1/min: 750 2nd speed Charge press. hPa: 1000

TD travel mm: 3,84,2	† 7th speed 1/min: 1000
mm: (3,34,7)	+ Charge press. hPa: 1000
3rd speed 1/min: 1100	+ Del.quantity_cm3/: 80,083,0
Charge press. hPa: 1000	1000H.: (78,584,5)
TD travel mm: 4,95,7	+ 8th speed 1/min: 850
mm: (4,66,0)	+ Charge press. hPa: 1000
	Del.quantity cm3/: 85,586,5 1000H: (83,089,0)
Supply-pump pressure characteristic:	† 1000H: (83,089,0)
	+ 9th speed 1/min: 700
1st speed 1/min: 500	+ Charge press. hPa: 350
Charge press. hPa: 1000	+ Del.quantity cm3/: 82,083,0
Supply-pump	1000H: (79,585,5) 10th speed 1/min: 500
pressure bar: 3,94,5	+ 10th speed 1/min: 500
2nd speed 1/min: 750	+ Charge press. hPa: 1000
Charge press. hPa: 1000	+ Del.quantity cm3/: 90,098,0
Supply-pump	+ 1000H: (90,397,7)
pressure bar: 5,15,7	† 11th speed 1/min: 500
3rd speed 1/min: 1100	+ Charge press. hPa: -
Charge press. hPa: 1000	+ Del.quantity cm3/: 66,567,5
Supply-pump	1000H: (64,070,0)
pressure bar: 6,57,1	+
	<pre>- Zero delivery (stop):</pre>
Overflow quantity at overflow valve:	+
	†
1st speed 1/min: 500	† Electr. shutoff:
Oveflow : 4183	†
quantity cm3/10s: (2698)	+ Speed 1/min: 375
2nd speed 1/min: 1100	+ ELAB volt: -
Charge press. hPa: 1000	├ max. 1000H.: -
Overflow : 55138	† · · ·
quantity cm3/10s: (40153)	† Idle delivery:
Dalivany and brooksysy chan	1st speed 1/min: 375
Delivery-quant. and breakaway char.:	Del.quantity cm3/: 8,014,0
1st speed 1/min: 700	1000H.: (6,016,0)
Charge-air pressure-setting	2nd speed 1/min: 450
point hPa: 350	Del.quantity_cm3/: 0,04,0
LDA stroke mm: 6,6	1000H.: -
Del.quantity cm3/: 82,083,0	
1000H.: (79,585,5)	Automatic starting fuel delivery:
2nd speed 1/min: 1260	Automatic Starting rule delivery.
Charge press. hPa: 1000	T 1st speed 1/min: 130
Del.quantity cm3/: 0,02,0	Del.quantity cm3/: -
1000H.: -	ind. 1000H: 65,0
3rd speed 1/min: 1250	I 111d. 100011. 0370
Charge press. hPa: 1000	2nd speed 1/min: 240
Deliguantity cm3/: 0,015,0	Del.quantity cm3/: -
1000H.: -	max. 1000H: 65,0
4th speed	1 110011 . 05/0
Charge press. hPa: 1000	Shutoff electromagnet:
Del.quantity cm3/: 15,00,0	The state of the execution agricult.
1000H.: -	↓ Cut-in
5th speed	# min. voltage : 10,0
Charge press. hPa: 1000	Rated voltage : 12,0
Deliquantity cm3/: 63,069,0	Marga vocage . 12/0
1000H.: (61,071,0)	Mounting and assembly dimensions:
Sth speed 1/min: 1100	Troditering and assembly atmensions.
Charge press. hPa: 1000	T Designation
Deliquantity cm3/: 77,580,5	٠
1000H.: (76,082,0)	+ K mm : - + KF mm : 5,05,4
(000)) ((0)006./0/	て 157 109 ・ ファビェ・・ファイ

Remarks:

Correction at adjusting nut (46)

Note inst. in remarks column

: CUM 3,9 N9 Test sheet : 08.11.88 Edition : 08.07.87 : ISO 4113 replaces Calibrating oil

Injection pump : VE 4/12F1150 R231-1 : 0 460 424 029 Type number

Customer Part-No.: 390 9407

Customer-specific information

Customer

: 4 BTA 3.9 Engine

k: 82 1/mi: 2200 Power Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

bar: 250...253 pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 688 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm: 840

Start of delivery

mm : 0.3Prestroke

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1,55

mm: +0,02(0,06)

Outlet

Injection-pump setting values Test specifications in parentheses Timing-device travel:

1/min: 750 Charge press. hPa: 1000 Setting value mm: 3,8...4,2

Supply-pump pressure:

Speed 1/min: 750 Charge press. hPa: 1000 Setting value bar: 5,1...5,7

Full-load del. with charge press.:

1/min: 850 Speed Charge press. hPa: 1000

Del.quantity cm3/ 1000H.: 85,5...86,5

cm3/ : 4,0 1000H : -Dispersion

Full-load del. w/out charge press.:

1/min : 500

Del.quantity cm3/

1000H.: 66,5...67,5

Low-idle speed regulation:

1/min: 375 Speed Del.quantity cm3/ 1000H.: 8,0...14,0

cm3/: 5,5Dispersion

1000H.: -

Full-load speed regulation:

1/min: 1170 Speed Charge press. hPa: 1000

Del.quantity cm3/ 1000H: 63,0...69,0

Start:

1/min: 100 Speed Del.quantity mind cm3/1000H.: 60,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500

Charge press. hPa: 1000
TD travel mm: 2,2...3,0
mm: (1,9...3,3)
2nd speed 1/min: 750

Charge press. hPa: 1000

TD travel mm: 3,84,2 mm: (3,34,7)	‡	7th speed 1/min: 1000 Charge press. hPa: 1000
3rd speed	†	Del.quantity cm3/: 80,083,0 1000H.: (78,584,5)
TD travel mm: 4,95,7 mm: (4,66,0)	Ŧ	8th speed 1/min: 850 Charge press. hPa: 1000
Supply-pump pressure characteristic:	Ī	Del.quantity cm3/: 85,586,5 1000H: (83,089,0) 9th speed 1/min: 700
1st speed 1/min: 500	Ţ	Charge press. hPa: 350
Charge press. hPa: 1000 Supply-pump	+	Del.quantity cm3/: 82,083,0 1000H: (79,585,5)
pressure bar: 3,94,5 2nd speed 1/min: 750	†	10th speed 1/min: 500 Charge press. hPa: 1000
Charge press. hPa: 1000 Supply-pump	+	Charge press. hPa: 1000 Del.quantity cm3/: 90,098,0 1000H: (90,397,7)
pressure bar: 5,15,7	+	11th speed
3rd speed 1/min: 1100 Charge press. hPa: 1000 Supply-pump	İ	Del.quantity cm3/: 66,567,5 1000H: (64,070,0)
pressure bar: 6,57,1	Ŧ	Zero delivery (stop):
Overflow quantity at overflow valve:	+	Electr. shutoff:
1st speed 1/min: 500	+	0 1 4/. 775
Oveflow : 4183	†	Speed 1/min: 375
quantity cm3/10s: (2698) 2nd speed	T	ELAB volt: - max. 1000H.: -
Charge press. hPa: 1000	Ι	max. roon
Overflow : 55138	I	Idle delivery:
quantity cm3/10s: (40153)	1	Tate actively.
4	+	1st speed 1/min: 375
Delivery-quant. and breakaway char.:	1	Del.quantity cm3/: 8,014,0 1000H.: (6,016,0)
lst speed 1/min: 700	+	2nd speed 1/min: 450
Charge-air pressure-setting	+	
point hPa: 350	+	Del.quantity cm3/: 0,04,0 1000H.: -
_DA stroke mm: 6,6	+	
Del.quantity cm3/: 82,083,0 1000H.: (79,585,5)	†	Automatic starting fuel delivery:
2nd speed 1/min: 1260	+	1st speed
Charge press. hPa: 1000	+	Del.quantity cm3/: -
Del.quantity cm3/: 0,02,0	†	ind. 1000H: 65,0
1000H.: - 3rd speed	Ť	2nd speed 1/min: 240
3rd speed	I	Del.quantity cm3/: -
Del.quantity cm3/: 0,015,0	I	max. 1000H: 65,0
1000H.: -	1	100617 : 0570
th speed 1/min: 1220	1	Shutoff electromagnet:
Charge press. hPa: 1000	+	
Deliquantity cm3/: 15,00,0	+	Cut-in
1000H.: -	+	min. voltage : 20,0
oth speed 1/min: 1170	+	Rated voltage : 24,0
charge press. hPa: 1000	+	Marin Marin III . I A I A
Deliquantity cm3/: 63,069,0	†	Mounting and assembly dimensions:
1000H.: (61,071,0)	†	Dagignation
oth speed 1/min: 1100	T	Designation
Charge press. hPa: 1000 Del.quantity cm3/: 77,580,5	I	K mm : - KF mm : 5,05,4
1000H · (76 0 82 0)	I	KF mm : 5,U5,4 MS mm : 1 0 1 4

SVS max. mm : 2,2

Remarks:

Correction at adjusting nut (46)

Note inst. in remarks column

Test sheet : PER 4,0 B Edition : 08.11.88

replaces

Calibrating oil : ISO 4113

: VE 4/12F1400 R279 Injection pump : 0 460 424 036

Type number

Customer Part-No. :

Customer-specific information Customer : PERKINS

: NA 4.40 LKW Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening

pressure bar: 172...175

Perforated-plate

diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery Prestroke mm : -(from BDC): ~

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 950 Speed Setting value mm: 2,3...2,7

Supply-pump pressure:

Speed 1/min: 950 Setting value bar: 5,4...6,0

Full-load del. w/out charge press.:

1/min: 800 Speed

Del.quantity cm3/

1000H.: 78,5...79,5 cm3/: 3,5 Dispersion 1000H.: -

Low-idle speed regulation:

1/min: 300 Speed

Speed Del.quantity cm3/ 1000H.: 21,0...25,0 Dispersion cm3/: 3,5 1000H.: -

Full-load speed regulation:

1/min: 1600 Speed

Del.quantity cm3/

1000H: 17,0...23,0

Start:

1/min: 100 Speed Del.quantity mind cm3/1000H.: 90.0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800

mm: 0,5...1,1 mm: (0,1...1,5) TD travel

1/min: 950 2nd speed TD travel

mm: 2,3...2,7 mm: (1,8...3,2) 1/min: 1400 mm: 2,9...3,7 mm: (2,6...4,0) 3rd speed TD travel

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump bar: 3,4...4,0 1/min: 800 pressure

2nd speed

Supply-pump

pressure bar: 4,8...5,4

1/min: 950 3rd speed

Supply-pump bar: 5,4...6,0 1/min: 1400 pressure 4th speed

```
Del.quantity cm3/: 5,0...12,0
Supply-pump
                      bar: 7,2...7,8
                                                                                          1000H.: (4,5...12,5)
  pressure
Overflow quantity at overflow valve:
                                                                        Automatic starting fuel delivery:
                   1/min: 500
1st speed
                                                                        1st speed
                                                                                           1/min: 150
Oveflow
                          : 41...83
                                                                        Del.quantity cm3/: -
               cm3/10s: (26...98)
1/min: 1400
                                                                                           1000H: 100.0
 quantity
                                                                         ind.
2nd speed
                         : 55...138
                                                                                          1/min: 200
                                                                        2nd speed
Overflow
                                                                        Del.quantity cm3/: -
max. 1000H: 65,0
 quantity cm3/10s: (40...153)
Delivery-quant. and breakaway char.:
                                                                        Shutoff electromagnet:
1st speed
                   1/min: 1660
Del.quantity cm3/: 0,0...3,0
1000H.: -
                                                                        Cut-in
                                                                        min. voltage 😁 : 10,0
2nd speed 1/min: 1600
Deliquantity cm3/: 17,0...23,0
1000H.: (14,0...26,0)
3rd speed 1/min: 1500
Deliquantity cm3/: 53,0...61,0
1000H.: (52,0...62,0)
                                                                        Rated voltage
                                                                                                 : 12,0
                                                                        Mounting and assembly dimensions:
                                                                        Designation
                                                                                                 : 3,2...3,4
                                                                        Κ
                                                                                            mm
                   1/min: 1400
                                                                                                 : K-0T
                                                                        KF
4th speed
                                                                                            mm
4th speed 1/min: 1400
Del.quantity cm3/: 70,5...73,5
1000H.: (69,0...75,0)
5th speed 1/min: 1100
Del.quantity cm3/: 77,3...79,7
1000H.: (75,5...81,5)
6th speed 1/min: 800
Del.quantity cm3/: 78,5...79,5
                                                                                                 : 1,1...1,5
: 17,0...19,0
                                                                        MS
                                                                                            mm
                                                                        XK
                                                                                            mm
                                                                                            mm
                                                                                                 : 9,6...13,0
                                                                        Remarks:
Del.quantity cm3/: (8,5...(7,0))
1000H.: (76,0...82,0)
7th speed 1/min: 500
Del.quantity cm3/: 68,0...71,0
1000H.: (66,5...72,5)
Zero delivery (stop):
Mech. shutoff:
Speed 1/min: 1400
Del.quantity cm3/: 0..3
1000H.: -
Electr. shutoff:
Speed
                   1/min: 1400
ELAB
                    volt: -
Del.quantity cm3/: 0,0...3,0 max. 1000H.: -
Idle delivery:
1st speed 1/min: 300
Del.quantity cm3/: 19,5..23,5
1000H.: (16,5..26,5)
                   1/min: 350
cm3/: 14,5..20,5
2nd speed
Del.quantity cm3/: 14,5..20,5)
```

007

3rd speed

1/min: 400

Note inst. in remarks column

Test sheet : PER 4,0 C : 08.11.88 Edition

replaces

: ISO 4113 Calibrating oil

: VE 4/12F1300 R280 Injection pump : 0 460 424 037 Type number

Customer-specific information Customer : PERKINS

: T4.40 Engine

TEST BENCH REQUIREMENTS

: 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 020

Opening

pressure bar : 172...175

Perforated-plate

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Indicator setting: Piston stroke mm: 1.0

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 950 Speed Charge press. hPa: 1000 Setting value mm: 1,5...1,9

Calibrating-oil return temp. °C

with thermometer : 40...48

diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outlet

800

Supply-pump pressure:

1/min: 950 Charge press. hPa: 1000 Setting value bar: 4,6...5,2

Full-load del. with charge press.:

1/min: 1000 Speed

Del.quantity cm3/ 1000H.: 88,0...98,0

Dispersion cm3/:4,01000H : (4.0)

Full-load del. w/out charge press.:

 $1/\min : 700$ Speed

Del.quantity cm3/ 1000H.: 85,0...86,0

Low-idle speed regulation:

1/min: 300 Speed

Del.quantity cm3/ 1000H.: 22,0...26,0 Dispersion cm3/: 5,0 1000H.: (5,0)

Full-load speed regulation:

1/min: 1400 Charge press. hPa: 1000

Del.quantity cm3/ 1000H: 47,0...53,0

Start:

Speed 1/min: 100 Del.quantity: 82,0...122,0 mind cm3/1000H.: 82,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 850 1st speed Charge press. hPa: 1000

mm: 0,3...1,1 mm: (0,0...1,4) TD travel

1/min: 950 2nd speed Charge press. hPa: 1000

TD travel mm: 1,5...1,9 mm: (1,0...2,4)

3rd speed 1/min: 1100 Charge press. hPa: 1000 mm: 2,0...2,8 mm: (1,7...3,1)

4th speed 1/min: 1300	+	7th speed
Charge press. hPa: 1000	+	Charge press. hPa: 1000
TD travel mm: 2,0,2,8	+	Del.quantity_cm3/: 95,098,0
mm: (1,73,1)	†	1000H.: (93,599,5)
C	†	8th speed 1/min: 700
Supply-pump pressure characteristic:	†	Charge press. hPa: 300 Del.quantity cm3/: 88,589,5
1at amond 1/min. 500	†	Deliquantity cm5/: 88,589,5
1st speed 1/min: 500	†	1000H: (86,092,0)
Supply-pump	†	9th speed 1/min: 700
pressure bar: 2,73,3	T	Charge press. hPa: -
bar: (2,53,5) 2nd speed	Ι	Del.quantity cm3/: 85,086,0
Charge press. hPa: 1000	Ι	1000H: (82,588,5) 10th speed 1/min: 500
Supply-pump	1	Charge press. hPa: -
pressure bar: 4,65,2	1	Del.quantity cm3/: 76,579,5
bar: (4,45,4)	1	1000H: (75,081,0)
3rd speed 1/min: 1300	1	133.11 (13/311131/31
Charge press. hPa: 1000	+	Zero delivery (stop):
Supaly-gaud	+	,
pressure bar: 6,06,6	+	Mech. shutoff:
bar: (5,86,8)	+	
	+	Speed 1/min: 1300
Overflow quantity at overflow valve:	+	Del.quantity cm3/: 03
	+	1000H.: -
1st speed 1/min: 500	+	
Oveflow : 4183	+	Electr. shutoff:
quantity cm3/10s: (2698) 2nd speed	†	Speed 1/min. 700
Change proce hPa: 1000	T	Speed 1/min: 300 ELAB volt: -
Charge press. hPa: 1000 Overflow : 55138	Ι	Del.quantity cm3/: 0,03,0
quantity cm3/10s: (40153)	1	max. 1000H.: -
quarterly only too. (to:)	1	nax.
Delivery-quant. and breakaway char.:	+	Idle delivery:
	+	•
1st speed 1/min: 700	+	1st speed 1/min: 300
Charge-air pressure-setting	+	Del.quantity cm3/: 22,026,0 1000H.: (19,029,0)
point hPa: 300	†	1000H.: (19,029,0)
LDA stroke mm: 7,0	†	2nd speed 1/min: 350
Del.quantity cm3/: 88,589,5	†	Del.quantity cm3/: 9,015,0
1000H.: (86,092,0) 2nd speed 1/min: 1560	T	1000H.: (7,017,0) 3rd speed 1/min: 400
Charge press. hPa: 1000	I	Del.quantity cm3/: 0,02,6
Del.quantity cm3/: 0,02,6	1	1000H.: (0,02,6)
1000H.: (0,02,6)	1	10001111 (0)01112/07
3rd speed	+	Automatic starting fuel delivery:
Charge press. hPa: 1000	+	
Del.quantity cm3/: 11,019,0	+	1st speed 1/min: 150
1000H.: (8,022,0)	+	Del.quantity cm3/: 100,0140,0
4th speed	+	ind. 1000H: 95,0
Charge press. hPa: 1000	+	
Del.quantity_cm3/: 47,053,0	+	2nd speed 1/min: 250
1000H.: (44,056,0)	†	Del.quantity cm3/: 20,070,0
5th speed 1/min: 1300	†	max. 1000H: 70,0
Charge press. hPa: 1000	T	Shutoff alastnomerast.
Del.quantity cm3/: 85,588,5 1000H.: (84,090,0)	I	Shutoff electromagnet:
6th speed	I	Cut-in
Charge press. hPa: 1000	I	min. voltage : 20,0
Deliquantity cm3/: 92,593,5	1	Rated voltage : 24,0
1000H (90.0 . 96.0)	1	Macca voccage . Layo

Mounting and assembly dimensions:

Designation

mm : 3,2...3,4 mm : K-OT mm : 1,1...1,5 K KF MS

Remarks:

Correction at adjusting nut (46)

Note inst. in remarks column

: MAN 4,4 A Test sheet Edition : 08.11.88

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/12F1350 R292 Type number : 0 460 242 040

Customer Part-No. :

Customer-specific information

Customer

: MAN

Engine

: D 0824GF

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening |

bar: 172...175 pressure

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Start of delivery

Prestroke mm: 0,4

(from BDC): +-0.02(0.04)

Indicator setting:

Piston stroke mm: 1.0 : A

Outlet

Injection pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1000 Speed

D11

Setting value mm: 3,0...3,4

Supply-pump pressure:

1/min: 1600 Setting value bar: 5,5...6,1

Full-load del. w/out charge press.:

1/min : 1000 Speed

Del.quantity cm3/ 1000H.: 99,5...100,5 Dispersion cm3/: 4,0 1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 300

Speed 1/min.
Del.quantity cm3/
1000H.: 24,0...30,0
Dispersion cm3/: 3,5 1000H.: (4,5)

Full-load speed regulation:

1/min: 1400

Del.quantity cm3/

1000H: 83,0...89,0

Start:

1/min: 100 Speed Del.quantity

cm3/1000H.: 70,0 mind

Load-dependent start of delivery:

1/min: 1000 Speed

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800

mm: 0,7...1,5 mm: (0,4...1,8) TD travel

1/min: 1000 2nd speed

TD travel

3rd speed

TD travel

mm: 3,0...3,4 mm: (2,5...3,9) 1/min: 1100 mm: 3,9...4,7 mm: (3,6...5,0)

Supply-pump pressure characteristic:

1st speed 1/min: 600

Supply-pump

bar: 3,5...4,1 pressure

Del.quantity cm3/: 0,0...4,0 1000H.: -1/min: 1000 2nd speed Supply-pump bar: 5,5...6,1 pressure 1/min: 1350 3rd speed Automatic starting fuel delivery: Supply-pump bar: 7,5...8,1 1/min: 300 pressure 1st speed Del.quantity cm3/: Overflow quantity at overflow valve: ind. 1000H: 90,0 1/min: 600 1/min: 450 1st speed 2nd speed Del.quantity cm3/: -Oveflow : 41...83 1000H: 90,0 cm3/10s: (26...98) quantity 1/min: 1350 2nd speed : 55...138 Overflow Shutoff electromagnet: quantity cm3/10s: (40...153) Cut-in Delivery-quant. and breakaway char.: min. voltage : 20,0 Rated voltage 1/min: 1600 1st speed Del.quantity cm3/: 0,0...2,0 1000H.: -Mounting and assembly dimensions: 1/min: 1550 2nd speed Designation Del.quantity cm3/: 0,0...15,0 1000H.: gref) KF : 5,1...5,5 mm 3rd speed 1/min: 1500 Del.quantity cm3/: 15,0...0,0 1000H.: -: 0,8...1,2 MS mm : 5,0 SVS max. mm 4th speed 1/min: 1400 Del.quantity cm3/: 83,0...89,0 1000H.: (81,0...91,0) Remarks: 5th speed 1/min: 1350
Del.quantity cm3/: 93,5...96,5
1000H: (92,0...98,0) 1/min: 1000 6th speed cm3/: 99,5...100,5 1000H.: (97,0...103,0) Del.quantity 1/min: 800 7th speed Del.quantity cm3/: 98,0...102,0 1000H.: (96,4...103,6) 1/min: 600 8th speed Del.quantity cm3/: 95,0...99,0 1000H: (93,4...100,6) Zero delivery (stop): Electr. shutoff: 1/min: 300 Speed ELAB volt: -Del.quantity cm3/: - max. 1000H.: -Idle delivery: 1st speed 1/min: 300 Del.quantity cm3/: 24,0..30,0 1000H.: (22,0..32,0) 2nd speed 1/min: 450

Note inst. in remarks column

Test sheet : CUM 5,9 UZ Edition : 09.11.88 : 07.07.87 replaces Calibrating oil : ISO 4113

: VE 6/12F1325 R198 : 0 460 426 063 Injection pump Type number

Customer Part-No.: 390 8212

Customer-specific information

Customer : CDC

Engine : 6BT-5.9

k: 93 Power 1/mi: 2800 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Openina

bar: 250...253 pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 688 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery

Prestroke mm: 0,3

(from BDC): +-0.02(0.06)

Start of delivery block Piston stroke

mm: 1,5 mm: +0,02(0,06)

Outlet

Injection-pump setting values Test specifications in parentheses Timing-device travel:

1/min: 850 Setting value mm: 3,8...4,2

Supply-pump pressure:

1/min: 850 Setting value bar: 3,9...4,5

Full-load del. w/out charge press.:

1/min : 1100 Speed

Del.quantity cm3/ 1000H.: 56,5...57,5 Dispersion cm3/: 4,0

1000H.: -

Low-idle speed regulation:

1/min: 375 Speed

Del.quantity cm3/ 1000H.: 8,0...14,0

cm3/: 5,5 Dispersion

1000H.:

Full-load speed regulation:

Speed 1/min: 1450

Del.quantity cm3/

1000H: 37,0...43,0

Start:

1/min: 100 Speed

Del.quantity mind cm3/1000H.: 50,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 500 1st speed

mm: 1,5...2,3 mm: (1,2...2,6) TD travel

1/min: 850

2nd speed mm: 3,8...4,2 mm: (3,3...4,7) TD travel

1/min: 1100 3rd speed TD travel

mm: 5,4...6,2 mm: (5,1...6,5)

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump

bar: 2,5...3,1 1/min: 850 pressure

2nd speed

Supply-pump bar: 3,9...4,5 pressure 3rd speed 1/min: 1100 Supply-pump 1st speed bar: 3,9...5,5 pressure ind. Overflow quantity at overflow valve: 2nd speed 1/min: 500 1st speed : 41...83 Oveflow cm3/10s: (26...98) quantity 1/min: 1400 2nd speed Overflow 55...138 quantity cm3/10s: (40...153) Cut-in Delivery-quant. and breakaway char.: 1/min: 1580 1st speed Del.quantity cm3/: 0,0...2,0 1000H.: -Designation 1/min: 1530 2nd speed K Del.quantity cm3/: 0,0...15,0 1000H.: -KF MS 3rd speed 1/min: 1490
Del.quantity cm3/: 15,0...0,0
1000H.: -SVS max. XK XL 4th speed 1/min: 1450 Del.quantity cm3/: 37,0...43,0 1000H.: (35,0...45,0) Remarks: 1/min: 1400 5th speed Del.quantity cm3/: 53,5...56,5 1000H.: (52,0...58,0) 6th speed 1/min: 1100 Del.quantity cm3/: 56,5...57,5 1000H.: (54,0...60,0) 7th speed 1/min: 850 Del.quantity cm3/: 52,5...56,5 1000H.: (50,8...58,2) 8th speed 1/min: 500 Del.quantity cm3/: 39,0...47,0 1000H: (39,3...46,7) Zero delivery (stop): Electr. shutoff: 1/min: 375 Speed ELAB volt: -Del.quantity cm3/: -1000H.: max. Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,0...14,0 1000H.: (6,0...16,0) 1/min: 450 2nd speed Del.quantity cm3/: 0,0...4,0 1000H.: -

Automatic starting fuel delivery: 1/min: 130 Del.quantity cm3/: -1000H: 60,0 1/min: 400 Del.quantity cm3/: - max. 1000H: 60,0 Shutoff electromagnet: min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: mm : 5,0...5,4 : 1,3...1,7 : 1,2 : 18,8...20,8 mm mm mm mm mm : 9,6...13,0

Note inst. in remarks column

: CUM 5,9 T : 09.11.88 Test sheet Edition : 11.86 replaces Calibrating oil : ISO 4113

Injection pump : VE 6/12F1000 | Type number : 0 460 426 081 : VE 6/12F1000 R225-12

Customer-specific information

Customer : CDC

: 6BT-5.9 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

pressure bar: 250...253

Perforated-plate

mm:0.5diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Start of delivery

Prestroke mm: 0,3

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1,0

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 750

Setting value mm: 3,3...3,7

D15

Supply-pump pressure:

Speed 1/min: 750

Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

1/min : 750 Speed

Del.quantity cm3/ 1000H.: 46,5...47,5 Dispersion cm3/: 4,0

1000H.: (4,5)

Low-idle speed regulation:

1/min: 365 Speed

Del.quantity cm3/ 1000H.: 8,0...14,0 Dispersion cm3/: 5,5 1000H.: (7,0)

Full-load speed regulation:

1/min: 1050 Speed

Del.quantity cm3/

1000H: 30,0...36,0

Start:

1/min: 100 Speed

Del.quantity

mind cm3/1000H.: 40,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed

TD travel

1/min: 500 mm: 1,1...1,9 mm: (0,8...2,2) 1/min: 750 mm: 3,3...3,7 2nd speed

TD travel

mm: (2,8...4,2)

1/min: 1000 3rd speed

mm: 5,3...6,1 mm: (5,0...6,4) TD travel

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 2,4...3,0 1/min: 750 pressure

2nd speed

Supply-pump

bar: 3,5...4,1 1/min: 1000 pressure

3rd speed

Del.quantity cm3/: 0,0...4,0 1000H.: (0,0...4,0) Supply-pump bar: 4,6...5,2 pressure Overflow quantity at overflow valve: Automatic starting fuel delivery: 1/min: 500 1st speed 1/min: 200 1st speed Oveflow : 41...83 Del.quantity cm3/: cm3/10s: (26...98) 1/min: 1000 1000H: 45,0 quantity ind. 2nd speed : 55...138 Overflow 2nd speed 1/min: 370 quantity cm3/10s: (40...153) Del.quantity cm3/: - max. 1000H: 50,0 Delivery-quant. and breakaway char.: Shutoff electromagnet: 1st speed 1/min: 1150 Del.quantity cm3/: U,U...3,0) Cut-in min. voltage : 20,0 1/min: 1100 2nd speed Rated voltage : 24,0 Del.quantity cm3/: 0,0...15,0 1000H.: (0,0...15,0) 3rd speed 1/min: 1060 Del.quantity cm3/: 15,0...45,0 1000H.: (15,0...45,0) Mounting and assembly dimensions: Designation K mm 1/min: 1050 KF : 5,0...5,4 4th speed Del.quantity cm3/: 30,0...30,0 1000H.: (27,0...39,0) : 1,0...1,4 MS mm SVS max. : 1,5 mm : 18,8...20,8 : 8,9...12,3 5th speed 1/min: 1000 XK mm Del.quantity cm3/: 44,5...-1,5 1000H.: (43,0...49,0) XL mm 1/min: 900 cm3/: 46,5...49,5 6th speed Remarks: Del.quantity cm3/: 40,5...51,5) 1/min: 750 7th speed cm3/: 46,5...47,5 Del.quantity 1000H.: (43,0...50,0) 1/min: 500 8th speed Del.quantity cm3/: 33,0...41,0 1000H: (31,0...43,0) Zero delivery (stop): Mech. shutoff: 1/min: 1000 Speed Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: 1/min: 365 Speed ELAB volt: cm3/: 0,0...3,0 Del.quantity 1000н.: max. Idle delivery: 1st speed 1/min: 365 Del.quantity cm3/: 8,0...14,0 1000H.: (6,0...16,0)

1/min: 450

2nd speed

016

Note inst. in remarks column

: CUM 5,9 T1 : 09.11.88 Test sheet Edition : 11.86 replaces : ISO 4113 Calibrating oil

: VE 6/12F1100 R225-13 Injection pump

: 0 460 426 082 Type number

Customer-specific information

: CDC Customer

Engine : 6BT-5.9

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250...253 pressure

Perforated-plate

mm:0.5diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery

Prestroke mm: 0,3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1,5

mm: +0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 750

Setting value mm: 3,4...3,8

D17

Supply-pump pressure:

1/min: 750 Speed Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

1/min: 900

Del.quantity cm3/ 1000H.: 71,5...72,5 Dispersion cm3/: 4,0

1000H.: (4,5)

Low-idle speed regulation:

1/min: 375 Speed

Del.quantity cm3/ 1000H.: 8,0...14,0 Dispersion cm3/: 5,5

1000H.: (7,0)

Full-load speed regulation:

1/min: 1140 Speed

Del.quantity cm3/

1000H: 53,0...59,0

Start:

Speed 1/min: 100

Del.quantity mind cm3/1000H.: 60,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 500 1st speed

mm: 1,5...2,3 mm: (1,2...2,6) TD travel

2nd speed 1/min: 750

TD travel

mm: 3,4...3,8 mm: (2,9...4,3)

3rd speed

1/min: 1100 mm: 5,2...6,0 mm: (4,9...6,3) TD travel

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 2,4...3,0 1/min: 750 pressure

2nd speed

Supply-pump

pressure

bar: 3,5...4,1 1/min: 1100

3rd speed

Del.quantity cm3/: 0,0...4,0 1000H.: (0,0...4,0) Supply-pump bar: 4,8...5,4 pressure Overflow quantity at overflow valve: Automatic starting fuel delivery: 1st speed 1/min: 500 1/min: 130 1st speed Oveflow : 41...83 Del.quantity cm3/: cm3/10s: (26...98) 1000H: 60,0 quantity ind. 2nd speed 1/min: 1100 Overflow 1/min: 240 : 55...138 2nd speed Del.quantity cm3/: -max. 1000H: 60,0 quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: Shutoff electromagnet: 1/min: 1220 / cm3/: 0,0...3,0 1000H.: (0,0...3,0) 1st speed Del.quantity Cut-in min. voltage : 20,0 1/min: 1200 Rated voltage : 24,0 2nd speed Del.quantity cm3/: 0.0...15,0 1000H.: (0.0...15,0) Mounting and assembly dimensions: 1/min: 1160 3rd speed Del.quantity cm3/: 15,0...45,0 1000H.: (15,0...45,0) Designation Κ mm 1/min: 1140 KF : 5,0...5,4 4th speed mm Del.quantity cm3/: 53.0...59.0 1000H.: (50.0...62.0) 5th speed 1/min: 1100 : 0,8...1,2 MS mm : 1,1 SVS max. mm : 20,2...22,2 XK mm Del.quantity cm3/: 66,5...69,5 1000H.: (65,0...71,0) XL : 10,5...13,9 mm 1/min: 900 Remarks: 6th speed Del.quantity cm3/: 71,5...72,5 1000H.: (69,0...75,0) 7th speed 1/min: 750 cm3/: 70,5...74,5 Del.quantity 1000H.: (68,5...76,5) 8th speed 1/min: 500 Del.quantity cm3/: 56,0...64,0 1000H: (54,0...66,0) Zero delivery (stop): Mech. shutoff: 1/min: 1100 Speed Del.quantity cm3/: 0..3 1000H.: -Electr. shutoff: 1/min: 375 Speed volt: 24,0 Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1/min: 375 cm3/: 8,0...14,0 1st speed Del.quantity cm3/: 0,0....(6,0...16,0)

2nd speed

D18

Note inst. in remarks column

: CUM 5,9 U4 Test sheet : 09.11.88 Edition : 08.07.88 replaces Calibrating oil : ISO 4113

Injection pump : VE 6/12F1100 R225-13 Type number : 0 460 426 082 Customer Part-No. : 390 8200

Customer-specific information

Customer : CDC

: 6BT-5.9 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Openina

bar: 250...253 pressure

Perforated-plate

mm : 0.5diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

Prestroke

e mm: 0,3 (from BDC): +-0,02(0,04)

Start of delivery block Piston stroke mm: 1,5

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 750 Speed

D19

Setting value mm: 4,3...4,7

Supply-pump pressure:

1/min: 750 Setting value bar: 3,7...4,3

Full-load del. w/out charge press.:

1/min: 750 Speed

Del-quantity cm3/ 1000H.: 73,5...74,5 Dispersion cm3/: 4,0

1000H.: -

Low-idle speed regulation:

1/min: 375 Speed

Del.quantity cm3/ 1000H.: 8,0...14,0

cm3/: 5,5 Dispersion

1000H.: -

Full-load speed regulation:

1/min: 1150

Del.quantity cm3/

1000H: 49,5...55,5

Start:

Speed 1/min: 100

Del.quantity cm3/1000H.: 70,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500

mm: 2,1...2,9 mm: (1,8...3,2) TD travel

1/min: 750 2nd speed

TD travel

mm: 4,3...4,7 mm: (3,8...5,2)

1/min: 1100 3rd speed

TD travel

mm: 5,8...6,6 mm: (5,5...6,9)

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 2,6...3,2 1/min: 750 pressure

2nd speed

Supply-pump

bar: 3,7...4,3 pressure

1/min: 1100 3rd speed

Supply-pump bar: 5,1...5,7 pressure Overflow quantity at overflow valve: 1st speed Oveflow 1/min: 500 : 41...83 cm3/10s: (26...98) quantity 1/min: 1100 2nd speed Overflow : 55...138 quantity cm3/10s: (40...153) Delivery-quant, and breakaway char.: 1/min: 1250 1st speed Del.quantity cm3/: 0,0...2,0 1000H.: -1/min: 1210 2nd speed Del.quantity cm3/: 0,0...15,0 1000H.: -1000H.: -1/min: 1150 4th speed Del.quantity cm3/: 49,5...55,5 1000H.: (47,5...57,5) 5th speed 1/min: 1100 Del.quantity cm3/: 67,5...70,5 1000H.: (66,0...72,0) 6th speed 1/min: 900
Del.quantity cm3/: 71,0...74,0
1000H.: (69,5...75,5)
7th speed 1/min: 750
Del.quantity cm3/: 73,5...74,5
1000H.: (71,0...77,0) 1/min: 500 8th speed Del.quantity cm3/: 61,0...69,0 1000H: (61,0...69,0) Zero delivery (stop): Electr. shutoff: 1/min: 375 Speed volt: -ELAB Del.quantity cm3/: -1000H.: max. Idle delivery: 1/min: 375 1st speed Del.quantity cm3/: 8,0...14,0 1000H.: (6,0...16,0) 1/min: 450 2nd speed Del.quantity cm3/: 0,0...4,0 1000H.: -Automatic starting fuel delivery:

1/min: 130 1st speed Del.quantity cm3/: -1000H: 85,0 1/min: 240 2nd speed Del.quantity cm3/: - max. 1000H: 85,0 Shutoff electromagnet: Cut-in : 10,0 min. voltage Rated voltage : 12,0 Mounting and assembly dimensions: Designation mm KF : 5,0...5,4 mm : 0,8...1,2 MS mm SVS max. mm : 20,2...22,2 : 10,5...13,9 ΧK mmXL mm Remarks:

Note inst. in remarks column

Test sheet : CUM 5,9 U6 : 09.11.88 Edition replaces : 08.07.87 : ISO 4113 Calibrating oil

Injection pump : VE 6/12F1100 R225-13

Type number : 0 460 426 082

Customer Part-No.: 390 8201

Customer-specific information

Customer

: 6BT-590 Engine

k: 106 1/mi: 2100 Power Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250...253 pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery

Prestroke mm: 0,3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1,5

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses Timing-device travel:

1/min: 750 Setting value mm: 3,4...3,8

Supply-pump pressure:

1/min: 750 Speed Setting value bar: 3,7...4,3

Full-load del. w/out charge press.:

1/min: 750 Speed

Deliquantity cm3/

1000H.: 75,0...76,0

cm3/: 4,0Dispersion 1000H.: -

Low-idle speed regulation:

Speed 1/min: 375

Del.quantity cm3/ 1000H.: 8,0...14,0

cm3/: 5,5 Dispersion

1000H.: -

Full-load speed regulation:

Speed 1/min: 1100

Del.quantity cm3/

1000H: 52,0...58,0

Start:

1/min: 100 Speed

Del.quantity cm3/1000H.: 70,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500

mm: 1,4...2,2 mm: (1,1...2,5) TD travel

1/min: 750 2nd speed

mm: 3,4...3,8 mm: (2,9...4,3) 1/min: 1050 TD travel

3rd speed

TD travel

mm: 4,6...5,4 mm: (4,3...5,7)

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 2,6...3,2 1/min: 750 pressure

2nd speed

Supply-pump bar: 3,7...4,3 pressure 1/min: 1050 3rd speed Supply-pump bar: 4,9...5,5 pressure Overflow quantity at overflow valve: 1/min: 500 1st speed : 41...83 cm3/10s: (26...98) 1/min: 1050 Oveflow quantity 2nd speed 55...138 Overflow cm3/10s: (40...153) quantity Delivery-quant. and breakaway char .: 1st speed 1/min: 1200 Del.quantity cm3/: 0,0...3,0 1000H.: -1/min: 1170 2nd speed Del.quantity cm3/: 0,0...15,0 3rd speed 1/min: 1130 Del.quantity cm3/: 15,0... 1000H.: -1/min: 1100 4th speed Del.quantity cm3/: 52,0...58,0 1000H.: (50,0...60,0) 1/min: 1050 5th speed Del.quantity cm3/: 68,5...71,5 1000H.: (67,0...73,0) 6th speed 1/min: 900
Del.quantity cm3/: 71,5...74,5
1000H.: (70,0...76,0)
7th speed 1/min: 750
Del.quantity cm3/: 75,0...76,0
1000H.: (72,5...78,5) 1/min: 500 8th speed Del.quantity cm3/: 59,5...67,5 1000H: (59,8...67,2) Zero delivery (stop): Electr. shutoff: 1/min: 375 Speed volt: -ELAB cm3/: -Del.quantity 1000H.: -Idle delivery: 1/min: 375 1st speed Del.quantity cm3/: 8,0...14,0 1000H.: (6,0...16,0) 1/min: 450 2nd speed Del.quantity cm3/: 0,0...4,0 1000H.: -

Shutoff electromagnet:

Cut-in

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : 5,0...5,4 KF mm : 0,8...1,2 MS mm SVS max. mm : 20,2...22,2 XK mm : 10,5...13,9 XL mm

Remarks:

Note inst. in remarks column

Test sheet : CUM 5,9 U3 Edition : 09.11.88 replaces : 08.07.88 Calibrating oil : ISO 4113

Injection pump : VE 6/12F1100 R225-13

Type number : 0 460 426 082 Customer Part-No. : 391 0251

Customer-specific information

: CDC Customer

: 6BT-5.9 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 electronically ; 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250...253 pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

Prestroke mm : 0.3

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke

mm: 1,5 mm: +0,02(0,06)

Outlet. : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 750 Speed

Setting value mm: 4,3...4,7

Supply-pump pressure:

1/min: 750 Setting value bar: 3,7...4,3

Full-load del. w/out charge press.:

Speed 1/min : 750

Del.quantity cm3/

1000H.: 73,5...74,5

cm3/: 4,0 Dispersion 1000H.: -

Low-idle speed regulation:

1/min: 375

Del.quantity cm3/ 1000H.: 8,0...14,0

cm3/: 5,5Dispersion

1000H.: -

Full-load speed regulation:

1/min: 1150 Speed

Del.quantity cm3/

1000H: 49,5...55,5

Start:

Speed 1/min: 100

Del.quantity cm3/1000H.: 70,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500

mm: 2,1...2,9 mm: (1,8...3,2) TD travel

1/min: 750 2nd speed

mm: 4,3...4,7 mm: (3,8...5,2) TD travel

1/min: 1100 3rd speed

mm: 5,8...6,6 mm: (5,5...6,9) TD travel

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 2,6...3,2 1/min: 750 pressure

2nd speed

Supply-pump

bar: 3,7...4,3 1/min: 1100 pressure

3rd speed

D23

Supply-pump pressure bar: 5,1...5,7 Overflow quantity at overflow valve: 1/min: 500 1st speed Oveflow : 41...83 quantity cm3/10s: (26...98) 1/min: 1100 2nd speed Overflow : 55...138 quantity cm3/10s: (40...153) Overflow Delivery-quant. and breakaway char.: 1/min: 1250 1st speed cm3/: 0,0...2,0 Del.quantity 1000H .: -1/min: 1210 2nd speed Del.quantity cmb/. cm3/: 0,0...15,0 3rd speed 1/min: 1170
Del.quantity cm3/: 15,0...0,0
1000H.: -4th speed 1/min: 1150 Del.quantity cm3/: 49,5...55,5 1000H:: (47,5...57,5) 1/min: 1100 5th speed cm3/: 67,5...70,5 Del.quantity **1000H.:** (66,0...72,0) 6th speed 1/min: 900 Del.quantity cm3/: (1,0....75,5) 7th speed 1/min: 750
Del.quantity cm3/: 73,5...74,5
1000H.: (71,0...77,0)
8th speed 1/min: 500 Del.quantity cm3/: 61,0...69,0 1000H: (61,3...68,7) Zero delivery (stop): Electr. shutoff: 1/min: 375 Speed ELAB volt: -Del.quantity cm3/: -1000H.: max. Idle delivery: 1/min: 375 1st speed Del.quantity cm3/: 8,0...14,0 1000H.: (6,0...16,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,0...4,0 1000H.: -Automatic starting fuel delivery:

1st speed 1/min: 130 Del.quantity cm3/: -1000H: 85,0 2nd speed 1/min: 240 Del.quantity cm3/: - max. 1000H: 85,0 Shutoff electromagnet: Cut-in min. voltage : 20,0 Rated voltage : 24,0 Mounting and assembly dimensions: Designation Κ mm KF 5,0...5,4 mm MS 0,8...1,2 mm 1,1 20,2...22,2 10,5...13,9 SVS max. mm XK mm XL mm

Remarks:

Note inst. in remarks column

Test sheet : CUM 5,9 U5 Edition : 09.11.88 : 08.07.87 replaces : ISO 4113 Calibrating oil

Injection pump : VE 6/12F1100 R225-13 Type number : 0 460 426 082

Customer Part-No.: 391 0252

Customer-specific information

Customer : CDC

: 6BT-590 Engine

k: 106 Power 1/mi: 2100 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer: 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250...253 pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

Prestroke mm: 0,3

(from BDC): +-0.02(0.04)

Start of delivery block mm: 1,5 Piston stroke

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses Timing-device travel:

1/min: 750 Setting value mm: 3,4...3,8

Supply-pump pressure:

1/min: 750 Speed

Setting value bar: 3,7...4,3

Full-load del. w/out charge press.:

1/min : 750 Speed Del.quantity cm3/ 1000H.: 75,0...76,0

cm3/: 4,0 Dispersion

1000H .: -

Low-idle speed regulation:

Speed 1/min: 375

Del.quantity cm3/ 1000H.: 8,0...14,0

cm3/: 5,5 Dispersion

1000H.:

Full-load speed regulation:

Speed 1/min: 1100

Del.quantity cm3/

1000H: 52,0...58,0

Start:

1/min: 100 Speed Del.quantity

mind cm3/1000H.: 70.0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 500 1st speed

mm: 1,4...2,2 mm: (1,1...2,5) 1/min: 750 TD travel

2nd speed

TD travel

mm: 3,4...3,8 mm: (2,9...4,3)

1/min: 1050 3rd speed

mm: 4,6...5,4 mm: (4,3...5,7) TD travel

Supply-pump pressure characteristic:

1/min: 500 1st speed

Supply-pump

bar: 2,6...3,2 1/min: 750 pressure

2nd speed

Supply-pump bar: 3,7...4,3 1/min: 1050 pressure 3rd speed Supply-pump bar: 4,9...5,5 pressure Overflow quantity at overflow valve: 1st speed 1/min: 500 Oveflow : 41...83 cm3/10s: (26...98) quantity 1/min: 1050 2nd speed 55...138 Overflow quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1st speed 1/min: 1200 Del.quantity cm3/: 0,0...3,0 1000H.: -1/min: 1170 2nd speed Deliquantity cms/. 0 cm3/: 0,0...15,0 3rd speed 1/min: 1130 Del.quantity cm3/: 15,0...0,0 1000H.: -4th speed 1/min: 1100
Del.quantity cm3/: 52,0...58,0
1000H.: (50,0...60,0)
5th speed 1/min: 1050
Del.quantity cm3/: 2000 1/min: 900 6th speed Del.quantity cm3/: (1,3....76,0) 1/min: 750 7th speed Del.quantity cm3/: 75,0...76,0 1000H.: (72,5...78,5) 8th speed 1/min: 500 Del.quantity cm3/: 59,5...67,5 1000H: (59,8...67,2) Zero delivery (stop): Electr. shutoff: Speed 1/min: 375 ELAB volt: -Del.quantity cm3/: -1000H.: max. Idle delivery: 1st speed 1/min: 375 Del.quantity cm3/: 8,0...14,0 1000H.: (6,0...16,0) 1/min: 450 2nd speed Del.quantity cm3/: 0,0...4,0 1000H.: -

Automatic starting fuel delivery: 1st speed 1/min: 150 Del.quantity cm3/: -1000H: 80,0 ind. 2nd speed 1/min: 250 Del.quantity cm3/: - max. 1000H: 80,0 Shutoff electromagnet: Cut-in min. voltage : 20,0 Rated voltage : 24,0 Mounting and assembly dimensions: Designation

K mm : 5,0...5,4 KF mm : 0,8...1,2 MS mm : 1,1 : 20,2...22,2 SVS max. mm XK mm : 10,5...13,9 XL mm

Remarks:

Note inst. in remarks column

: CUM 5,9 L4 Test sheet Edition : 09.11.88 replaces : 14.07.87 Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R173-8 : 0 460 426 101

Type number

Customer-specific information : CUMMINS/GB Customer

: 6 BTA-590 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

bar: 250...253 pressure

Perforated-plate

diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery

Prestroke mm: 0,3

(from BDC): +-0.02(0.04)

Start of delivery block mm: 1,85 Piston stroke

mm: +-0.02(0.06)

Outlet

Injection pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 750 Charge press. hPa: 1000 Setting value mm: 1,4...1,8

Supply-pump pressure:

1/min: 750 Speed Charge press. hPa: 1000 Setting value bar: 3,2...3,8

Full-load del. with charge press.:

1/min: 750 Charge press. hPa: 1000
Del.quantity cm3/
1000H.: 82,0...83,0

 $cm3/: 4_{2}0$ Dispersion 1000H : (4,5)

Full-load del. w/out charge press.:

 $1/\min : 500$ Speed

Del.quantity cm3/ 1000H.: 40,0...41,0

Low-idle speed regulation:

1/min: 375 Speed

Del.quantity cm3/ 1000H.: 4,0...8,0

cm3/: 5,5 1000H.: (7,0) Dispersion

Full-load speed regulation:

Speed 1/min: 1300 Charge press. hPa: 1000

Del.quantity cm3/

1000H: 65,0...71,0

Start:

Speed 1/min: 100 Del.quantity mind cm3/1000H.: 70,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 600 1st speed Charge press. hPa: 1000

mm: 0,4...1,2 mm: (0,1...1,5) 1/min: 750 TD travel

2nd speed Charge press. hPa: 1000

mm: 1,4...1,8 mm: (0,9...2,3) TD travel

3rd speed 1/min: 1050

Charge press. hPa: 1000

	2,33,1 (2,03,4)	‡	8th speed 1/min: 750 Charge press. hPa: 1000 Del.guantity cm3/: 82.083.0
Supply-pump pressur	e characteristic:	+	Del.quantity cm3/: 82,083,0 1000H: (79,585,5) 9th speed 1/min: 700
1st speed 1/min: Charge press. hPa: Supply-pump	1000	‡	Charge press. hPa: 450 Del.quantity cm3/: 67,068,0 1000H: (63,072,0)
pressure bar: 2nd speed 1/min: Charge press. hPa:	750	+	10th speed 1/min: 500 Charge press. hPa: 1000 Del.quantity cm3/: 82,090,0
Supply-pump pressure bar: 3rd speed 1/min: Charge press. hPa:	1050	†	1000H: - 11th speed 1/min: 500 Del.quantity cm3/: 40,041,0 1000H: (36,045,0)
Supply-pump pressure bar:		‡	Zero delivery (stop):
Overflow quantity a	t overflow valve:	+	Mech. shutoff:
1st speed 1/min: Oveflow : quantity cm3/10s:	41838 (2698)	+	Speed 1/min: 1250 Del.quantity cm3/: 03 1000H.: -
2nd speed 1/min: Charge press. hPa: Overflow :	1000 55138	Ī	Idle delivery:
quantity cm3/10s:		‡	1st speed
Delivery-quant. and	•	+	1000H.: (1,011,0) 2nd speed 1/min: 500
1st speed 1/min: Charge-air pressure- point hPa:	-setting	‡	Del.quantity cm3/: 0,04,0 1000H.: (0,04,0)
LDA stroke mm: Del.quantity cm3/: 1000H.:	7,0 67,068,0	‡	Automatic starting fuel delivery:
1000H.: 2nd speed 1/min: Charge press. hPa: Del.quantity cm3/:	1400 1000	+	1st speed 1/min: 200 Del.quantity cm3/: - ind. 1000H: 60,0
1000H.: 3rd speed 1/min: Charge press. hPa:	(0,03,0) 1370 1000	+++++++++++++++++++++++++++++++++++++++	2nd speed 1/min: 370 Del.quantity cm3/: - max. 1000H: 60,0
Del.quantity cm3/: 1000H.: 4th speed 1/min:	(0,015,0)	Ī	Mounting and assembly dimensions:
Charge press. hPa: Del.quantity cm3/:	1000	1	Designation K mm : - KF mm : 5,05,4
5th speed 1/min: Charge press. hPa: Del.quantity cm3/: 1000H.:	1300 1000	+	MS
oth speed 1/min:	1250	+	XL mm : 12,916,3
Charge press. hPa: Del.quantity cm3/: 1000H.:		Ī	Remarks: Correction at adjusting nut (46)
7th speed 1/min: Charge press. hPa: Del.quantity cm3/:	1050 1000	+++++++++++++++++++++++++++++++++++++++	controll at adjusting nat (407

Note inst. in remarks column

Test sheet : MAN 7,2 M Edition : 09.11.88

replaces

Calibrating oil : ISO 4113 /

Injection pump : VE 6/12F1350 R291 Type number : 0 460 426 104

Customer Part-No. :

Customer-specific information

Customer : MAN

Engine : D 0826 GF

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar: 172...175 pressure

Perforated-plate

diameter mm: 0.6

Test ini. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery

Prestroke mm: 0,35

(from BDC): +-0.02(0.04)

Indicator setting:

Piston stroke mm: 1.0 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1000 Speed

E01

Setting value mm: 3,1...3,5

Supply-pump pressure:

1/min: 1000 Setting value bar: 5,7...6,3

Full-load del. w/out charge press.:

1/min : 1000 Speed

Del.quantity cm3/ 1000H.: 95,5...96,5

Dispersion cm3/: 4,0

1000H.: (4,5)

Low-idle speed regulation:

1/min: 300

Del.quantity cm3/ 1000H.: 19,0...25,0

Full-load speed regulation:

1/min: 1400

Del.quantity cm3/

1000H: 77,0...83,0

Start:

Speed 1/min: 100

Del.quantity

mind cm3/1000H.: 70,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800

TD travel

2nd speed

TD travel

mm: 1,0...1,8 mm: (0,7...2,1) 1/min: 1000 mm: 3,1...3,5 mm: (2,6...4,0)

1/min: 1100 3rd speed

TD travel

mm: 3,9...4,7 mm: (3,6...5,0)

Supply-pump pressure characteristic:

1/min: 600 1st speed

Supply-pump

bar: 3,9...4,5 1/min: 1000 pressure

2nd speed

Supply-pump

bar: 5,7...6,3 1/min: 1350 pressure

3rd speed

Supply-pump

bar: 7,4...8,0 pressure

Overflow quantity at overflow valve: 1/min: 600 1st speed Oveflow : 41...83 quantity cm3/10s: (26...98) 1/min: 1350 2nd speed Overflow : 55...138 quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1st speed 1/min: 1600
Del.quantity cm3/: 0,0...2,0
1000H: (0,0...2,0)
2nd speed 1/min: 1530 Del.quantity cm3/: 0,0...20,0 1000H.: -1/min: 1480 3rd speed Del.quantity cm3/: 20,0...0,0 1000H.: 1000H.:
4th speed 1/min: 1400

Del.quantity cm3/: 77,0...83,0

1000H.: (75,0...85,0)

5th speed 1/min: 1350

Del.quantity cm3/: 90,5...93,5

1000H.: (89,0...95,0)

6th speed 1/min: 1000

Del.quantity cm3/: 95,5...96,5

1000H.: (93,0...99,0)

7th speed 1/min: 800 7th speed 1/min: 800 Del.quantity cm3/: 95,0...77,0 1000H.: (93,3...100,7) 1/min: 600 8th speed Del.quantity cm3/: 90,0...94,0 1000H: (88,3...95,7) Zero delivery (stop): Electr. shutoff: 1/min: 300 Speed ELAB volt: -Del.quantity cm3/: -1000H.: max. Idle delivery: 1st speed 1/min: 300 Del.quantity cm3/: 19,0..25,0 1000H.: (17,0..27,0) 2nd speed 1/min: 450 Del.quantity cm3/: 0,0...4,0 1000H.: -Automatic starting fuel delivery: 1st speed 1/min: 250

Del.quantity cm3/: -ind. 1000H: 90,0 1/min: 450 2nd speed Del.quantity cm3/: - max. 1000H: 90,0 Shutoff electromagnet: Cut-in min. voltage : 20,0 Rated voltage : 24,0 Mounting and assembly dimensions: Designation mm : 5,1...5,5 KF : 0,8...1,2 MS mm SVS max. mm Remarks:

Note inst. in remarks column

: CUM 5,9 U11 Test sheet : 09.11.88 Edition

replaces

Calibrating oil : ISO 4113

: VE 6/12F1100 R296 Injection pump

Type number : 0 460 426 105

Customer-specific information

Customer : CDC

: 6 BT- 590 I Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 027 assembly

Openina

bar: 250...253 pressure

Perforated-plate

diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Start of delivery

Prestroke mm : 0.3

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke

mm: 1,5 mm: +0,02(0,06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 750 Speed Charge press. hPa: 1000 Setting value mn: 3,1...3,5

Supply-pump pressure:

1/min: 750 Charge press. hPa: 1000 Setting value bar: 4,1...4,7

Full-load del. with charge press.:

Speed 1/min: 750 Charge press. hPa: 1000 Del.quantity cm3/

1000 : 83,0...84,0

Dispersion cm3/:4,01000H : (4,5)

Full-load del. w/out charge press.:

1/min : 500 Speed

Del.quantity cm3/ 1000H.: 30,5...31,5

Low-idle speed regulation:

1/min: 400 Speed Del.quantity cm3/ 1000H.: 4,0...10,0

cm3/: 5,5 Dispersion 1000H.: (7,0)

Full-load speed regulation:

1/min: 1170 Speed Charge press. hPa: 1000

Del.quantity cm3/

1000H: 50,0...56,0

Start:

1/min: 100 Speed Del.quantity cm3/1000H.: 65,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1100 1st speed Charge press. hPa: 1000 TD travel mm: 5,1...5,9

mm: (4,8...6,2)

1/min: 750 2nd speed

Charge press. hPa: 1000

mm: 3,1...3,5 mm: (2,6...4,0) TD travel

3rd speed 1/min: 500 Charge press. hPa: 1000

£03

	1,01,8 (0,72,1)	‡	8th speed 1/min: 750 Charge press. hPa: 1000
Supply-pump pressur	e characteristic:	+	Del.quantity cm3/: 83,084,0 1000H: (80,586,5)
1st speed 1/min: Charge press. hPa:		+++++++++++++++++++++++++++++++++++++++	9th speed 1/min: 700 Charge press. hPa: 450 Del.quantity cm3/: 69,570,5
Supply-pump pressure bar: 2nd speed 1/min: Charge press. hPa:	750	† - -	1000H: (66,074,0) 10th speed 1/min: 500 Charge press. hPa: 1000 Del.quantity cm3/: 86,094,0
Supply-pump pressure bar: 3rd speed 1/min:		+	Del.quantity cm3/: 86,094,0 1000H: - 11th speed 1/min: 500
Charge press. hPa: Supply-pump	1000	+	Charge press. hPa: - Del.quantity cm3/: 30,531,5 1000H: (27,035,0)
pressure bar:	5,76,3	+	Zero delivery (stop):
Overflow quantity a		+	Mech. shutoff:
1st speed 1/min: Charge press. hPa: Oveflow: quantity cm3/10s:	- 4183 (2698)	† + + + +	Speed 1/min: 1100 Del.quantity cm3/: 03 1000H.: -
2nd speed 1/min: Charge press. hPa: Overflow :	1000	Ŧ	Electr. shutoff:
quantity cm3/10s:	(40153)	Ī	Speed 1/min: 400 ELAB volt: -
Delivery-quant. and	breakaway char.:	+	Del.quantity cm3/: 0,03,0 max. 1000H.: -
1st speed 1/min: Charge-air pressure point hPa:	-setting	‡	Idle delivery:
Del.quantity cm3/:	69,570,5 (66,074,0)	†	1st speed
Charge press. hPa: Del.quantity cm3/: 1000H.:	1000 0,03,0 (0,03,0)	+++++++++++++++++++++++++++++++++++++++	2nd speed 1/min: 500 Del.quantity cm3/: 0,04,0 1000H.: (0,04,0)
	1000	Ī	Automatic starting fuel delivery:
1000H.: 4th speed 1/min: Charge press. hPa:	(0,015,0) 1200 1000	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min: 280 Del.quantity cm3/: + ind. 1000H: 55,0
Del.quantity cm3/: 1000H.: 5th speed 1/min: Charge press. hPa:	(15,055,0) 1170	╀╌┾╌╁╌┼╌┼╌┽╌┽╌┼	2nd speed
Del.quantity cm3/:	50,056,0 (47,059,0)	1	Shutoff electromagnet:
<pre>óth speed 1/min: Charge press. hPa:</pre>	1100 1000	+	Cut-in
Del.quantity cm3/: 1000H.:	67,070,0 (65,571,5)	+	min. voltage : 10,0 Rated voltage : 12,0
7th speed 1/min: Charge press. hPa: Del.quantity cm3/:	1000	†	Mounting and assembly dimensions:
1000н. :	(70,077,0)	+	Designation

K mm : KF mm : 5,0...5,4
MS mm : 1,3...1,7
SVS max. mm : 2,1
XK mm : 18,8...20,8
XL mm : 10,4...13,8

Remarks:

Correction at adjusting nut (46)

Note inst. in remarks column

Test sheet Edition : CUM 5,9 U12 : 09.11.88

replaces

Calibrating oil : ISO 4113

Injection pump : VE 6/12F1100 R296-1 Type number : 0 460 426 106

Customer Part-No. :

Customer-specific information

Customer : CDC

Engine : 5 BTA- 590 I

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening |

pressure bar: 250...253

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery

Prestroke mm: 0,3 (from BDC): +-0,02(0,04)

Start of delivery block mm: 1,85 Piston stroke

mm: +0,02(0,06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 900 Charge press. hPa: 1000

Setting value mm: 1,0...1,4

Supply-pump pressure:

1/min: 900 Speed Charge press. hPa: 1000

Setting value bar: 4,1...4,7

Full-load del. with charge press.:

Speed 1/min: 750 Charge press. hPa: 1000
Del.quantity cm3/
1000H.: 91,5...92,5
Dispersion cm3/: 4,0

1000H : (4,5)

Full-load del. w/out charge press.:

1/min : 500

Del.quantity cm3/ 1000H.: 43,5...44,5

Low-idle speed regulation:

1/min: 375 Speed

Del.quantity cm3/ 1000H.: 15,0...21,0

Full-load speed regulation:

1/min: 1160 Speed Charge press. hPa: 1000 Del.quantity cm3/ 1000H: 61,0...67,0

Start:

1/min: 100 Speed Del.quantity cm3/1000H.: 65,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750 Charge press. hPa: 1000

mm: 0,1...0,9 mm: (0,0...1,2) TD travel

2nd speed 1/min: 900 Charge press. hPa: 1000

mm: 1,0...1,4 mm: (0,5...1,9) TD travel

3rd speed 1/min: 1100

Charge press. hPa: 1000

TD travel mm:	1,72,5 (1,42,8)	†	Del.quantity cm3/: 82,585,5 1000H.: (80,587,5) 8th speed 1/min: 750
Supply-pump pressur	e characteristic:	Ī	Charge press hPa: 1000
1st speed 1/min: Charge press. hPa: Supply-pump	1000	+	Del.quantity cm3/: 91,592,5 1000H: (89,095,0) 9th speed 1/min: 700 Charge press. hPa: 550
pressure bar: 2nd speed 1/min: Charge press. hPa: Supply-pump pressure bar: bar:	900 1000 4,14,7	† † † †	Del.quantity cm3/: 76,577,5 1000H: (73,081,0) 10th speed 1/min: 500 Charge press. hPa: 1000 Del.quantity cm3/: 94,0102,0
3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar:	1100 1000	+++++++++++++++++++++++++++++++++++++++	1000H: - 11th speed 1/min: 500 Charge press. hPa: - Del.quantity cm3/: 43,544,5 1000H: (40,048,0)
Overflow quantity a	t overflow valve:	Ī	Zero delivery (stop):
1st speed 1/min: Charge press. hPa:		1	Mech. shutoff:
Oveflow: quantity cm3/10s: 2nd speed 1/min:	4183 (2698) 1100	+++++++++++++++++++++++++++++++++++++++	Speed 1/min: 1100 Del.quantity cm3/: 03 1000H.: -
Charge press. hPa: Overflow: quantity cm3/10s:	55138	I	Electr. shutoff:
Delivery-quant. and 1st speed 1/min:	breakaway char.:	T + +	Speed 1/min: 375 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: -
Charge-air pressure point hPa:	-setting 550		Idle delivery:
Del.quantity cm3/: 1000H.: 2nd speed 1/min: Charge press. hPa: Del.quantity cm3/: 1000H.:	76,577,5 (73,081,0) 1270 1000 0,03,0 (0,03,0)	+ + + + + + + + + + + + + + + + + + + +	1st speed 1/min: 375 Del.quantity cm3/: 15,021,0 1000H.: (13,023,0) 2nd speed 1/min: 500 Del.quantity cm3/: 0,04,0 1000H.: (0,04,0)
3rd speed 1/min: Charge press. hPa:	1000	+	Automatic starting fuel delivery:
4th speed 1/min: Charge press. hPa:	(0,015,0) 1180 1000	† † † †	1st speed 1/min: 250 Del.quantity cm3/: - ind. 1000H: 55,0
5th speed 1/min: Charge press. hPa:	(15,055,0) 1160 1000	T T T T	2nd speed 1/min: 350 Del.quantity cm3/: - max. 1000H: 55,0
Del.quantity cm3/: 1000H.: 6th speed 1/min:	(58,0,70,0)	I	Shutoff electromagnet:
Charge press. hPa: Del.quantity cm3/: 1000H.:	1000 75,078,0 (73,579,5)	+	Cut-in min. voltage : 10,0 Rated voltage : 12,0
7th speed 1/min: Charge press. hPa:	1000	Ŧ	Mounting and assembly dimensions:

E07

Remarks:

Correction at adjusting nut (46)

Note inst. in remarks column

Test sheet : MAN 7,2 M1 : 09.11.88 Edition

replaces

Calibrating oil : ISO 4113

Injection pump : VE 6/12F1350 R291-1

: 0 460 426 107 Type number

Customer-specific information

Customer : MAN

Engine : D 0826 GF

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar: 172...175 pressure

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm : 840 x Length

Start of delivery

Prestroke mm: 0.35 (from BDC): +0.02(0.04)

Indicator setting:

Piston stroke mm: 1.0 Outlet

Injection-pump setting values

Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1000 Setting value mm: 3,2...3,6

Supply-pump pressure:

1/min: 1000 Setting value bar: 5,7...6,3

Full-load del. w/out charge press.:

Speed 1/min : 1000

Del.quantity cm3/

1000H.: 92,5...93,5

cm3/: 4,0 Dispersion

1000H.: (4,5)

Low-idle speed regulation:

Speed 1/min: 300

Speed 17000. 370 Del.quantity cm3/ 1000H.: 13,0...19,0 Dispersion cm3/: 3,5

1000H.: (4,5)

Full-load speed regulation:

1/min: 1440 Speed

Del.quantity cm3/ 1000H: 62,0...68,0

Start:

1/min: 100 Speed

Del.quantity

cm3/1000H.: 70,0 mind

Load-dependent start of delivery:

1/min: 1000 Speed

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 800 1st speed

TD travel

mm: 1,0...1,8 mm: (0,7...2,1) 1/min: 1000 mm: 3,2...3,6 mm: (2,7...4,1) 2nd speed

TD travel

1/min: 1100

3rd speed

mm: 4,1...4,9 TD travel

mm: (3,8...5,2)

Supply-pump pressure characteristic:

1/min: 600 1st speed

Supply-pump

bar: 3,9...4,5 1/min: 1000 pressure

2nd speed

Supply-pump bar: 5,7...6,3 Automatic starting fuel delivery: pressure 1/min: 1100 3rd speed Supply-pump 1st speed 1/min: 250 Del.quantity cm3/: pressure bar: 7,4...8,0 1000H: 90,0 ind. Overflow quantity at overflow valve: 1/min: 450 2nd speed 1st speed Oveflow Del.quantity cm3/: - max. 1000H: 90,0 1/min: 600 : 41...83 cm3/10s: (26...98) quantity 2nd speed 1/min: 1350 Shutoff electromagnet: Overflow : 55...138 quantity cm3/10s: (40...153) Cut-in min. voltage Delivery-quant. and breakaway char.: Rated voltage 1st speed 1/min: 1600 Mounting and assembly dimensions: Del.quantity cm3/: 0,0...2,0 1000H.: -Designation 1/min: 1540 cm3/: 0,0...15,0 2nd speed mm : 5,1...5,5 : 0,8...1,2 KF Del.quantity mm 1000H.: -MS mm 3rd speed 1/min: 1490 Del.quantity cm3/: 15,0...0,0 1000H.: -SVS max. mm : 4,2 Remarks: 1/min: 1440 4th speed Del.quantity cm3/: 62,0...68,0 1000H.: (60,0...70,0) 1/min: 1350 5th speed Del.quantity cm3/: 91,0...94,0 1000H.: (89,5...95,5) 6th speed 1/min: 1000 Del.quantity cm3/: 92,5...93,5 1000H.: (90,0...96,0) 1/min: 800 7th speed Del.quantity cm3/: 87,3....95,2) 1/min: 600 8th speed Del.quantity cm3/: 83,0...87,0 1000H: (81,3...88,7) Zero delivery (stop): Electr. shutoff: 1/min: 300 Speed volt: -Del.quantity cm3/: - max. 1000H.: -Idle delivery: 1st speed 1/min: 300 Del.quantity cm3/: 13,0..19,0 1000Hi.: (11,0..21,0) 1/min: 450 2nd speed Del.quantity cm3/: 0,0...4,0 1000H.: -

Note inst. in remarks column

: MAN 7,2 M2 : 09.11.88 Test sheet Edition

replaces

Calibrating oil : ISO 4113

: VE 6/12F1300 R307 Injection pump

: 0 460 426 112 Type number

Customer-specific information

Customer

: MAN

Engine

: D 0826TF

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening

bar: 172...175 pressure

Perforated-plate

diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness mm: 840 x Length

Start of delivery

Prestroke mm : 0,2

(from BDC): +-0.02(0.04)

Indicator setting: Piston stroke mm: 1.0 Outlet

Injection—pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1000 Charge press. hPa: 1000 Setting value mm: 2,8...3,2 Supply-pump pressure:

Speed 1/min: 1000 Charge press. hPa: 1000 Setting value bar: 7,4...8,0

Full-load del. with charge press.:

1/min: 1000 Speed Charge press. hPa: 1000

Del.quantity cm3/ 1000H.: 124,0...125,0

cm3/: 4,0' 1000H: (4,5) Dispersion

Full-load del. w/out charge press.:

 $1/\min : 600$ Speed

Del.quantity cm3/ 1000H.: 110,5...111,5

Low-idle speed regulation:

1/min: 300 Speed

Del.quantity cm3/ 1000H.: 26,5...33,5 Dispersion cm3/: 3,5

1000H.: (4,5)

Full-load speed regulation:

Speed 1/min: 1370 Charge press. hPa: 1000

Del.quantity cm3/

1000H: 89,0...95,0

Start:

Speed 1/min: 100 Del.quantity cm3/1000H.: 70,0 mind

Load-dependent start of delivery:

1/min: 1000 Speed

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 900 1st speed Charge press. hPa: 1000

mm: 1,5...2,3 mm: (1,2...2,6) TD travel

2nd speed 1/min: 1000

Charge press. hPa: 1000

TD travel mm:	2,83,2 (2,33,7)	‡	Charge press. hPa: 1000 Del.quantity cm3/: 122,0127,0
3rd speed 1/min: Charge press. hPa:	1100	1	1000H.: (120,8128,2) 8th speed 1/min: 600
TD travel mm:	3,54,3	+	Charge press. hPa: 1000
mm:	(3,24,6)	‡	Del.quantity cm3/: 123,0132,0 1000H: (123,8131,2)
Supply-pump pressur	e characteristic:	‡	9th speed 1/min: 600 Charge press. hPa: 300
1st speed 1/min:	600	1	Del.quantity cm3/: 110,5111,5
Charge press. hPa:		1	1000H: (108,0114,0)
Supply-pump	1000	I	10th speed 1/min: 600
pressure bar:	5,25,8	+	Charge press. hPa: -
2nd speed 1/min:	1000	+	Del.quantity cm3/: 94,595,5
Charge press. hPa:	1000	+	1000H: (92,098,0)
Supply-pump		1	, , , , , , , , , , , , , , , , , , ,
pressure bar:	7.48.0	1	Zero delivery (stop):
3rd speed 1/min:	1100	1	2010 40211017 1000071
Charge press. hPa:	1000	Ţ	
Supply-pump	1000	I	Electr. shutoff:
pressure bar:	7.8 8.4	1	Lecter: Shatorr.
piessare par.	1,00,4	1	Speed 1/min: 300
Overflow quantity as	t overflow valve:	1	ELAB volt: -
over reen quarterey a	c over ractor	1	Del.quantity cm3/: -
1st speed 1/min:	600	\perp	max. 1000H.: -
Oveflow :	4183	1	100011.
quantity cm3/10s:		1	Idle delivery:
2nd speed 1/min:	1300	Ţ	ide decivery.
Charge press. hPa:	1000	Ι	1st speed 1/min: 300
Overflow :	55 178	T	Del.quantity cm3/: 26,533,5
quantity cm3/10s:		Ι	1000H.: (25,035,0)
quarterey cmorros.	(40155)	I	2nd speed 1/min: 3503
Delivery-quant. and	breakaway char ·	I	Del.quantity cm3/: 3,012,0
becively qualit. and	Dicardady chai	1	1000H.: (2,512,5)
1st speed 1/min:	1520	1	3rd speed 1/min: 400
Charge-air pressure-		1	Del.quantity cm3/: 0,04,0
point hPa:		1	1000H.: -
Del.quantity cm3/:		\perp	100011
1000H.:	-	1	Automatic starting fuel delivery:
2nd speed 1/min:		1	nationality state ing face activery.
Charge press. hPa:		1	1st speed 1/min: 350
Deliquantity cm3/:	0 0 15 0	\perp	Del.quantity cm3/: -
1000H.:		1	ind. 1000H: 95,0
3rd speed 1/min:		1	111d. 100011. 1970
Charge press. hPa:		1	2nd speed 1/min: 450
Del.quantity cm3/:		I	Del.quantity cm3/: -
1000H.:		Ι	max. 1000H: 95,0
4th speed 1/min:		Ţ	10001¥ 1 7570
Charge press. hPa:		Ι	Shutoff electromagnet:
Deliquantity cm3/:	80 A 95 A	1	ondeon electromagnet.
AUUNT CIRPLE	(87,097,0)	Ι	Cut-in
		Ι	min. voltage : 10,0
		Ι	Rated voltage : 12,0
		Ι	nated voltage . 12,0
Del.quantity cm3/:	(110 0 125 0)	I	Mounting and accembly dimensions:
Sth speed 1/min:	(119,0125,0)	Τ	Mounting and assembly dimensions:
		T	Designation
Charge press. hPa:	1000 10/ 0 105 0	T	Designation
Del.quantity cm3/:		T	Ms mm : -
	(121,5127,5)	Ť	MS mm : 0,61,0
7th speed 1/min:	QUU	+	SVS max. mm : 1,2

Remarks: Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column : REN 2,0 P Test sheet Edition : 10.11.88 replaces Calibrating oil : ISO 4113 Injection pump : VE 4/ 8F2300 R317 : 0 460 484 020 Type number Customer-specific information Customer : RNUR Engine : F8Q-A06 TEST BENCH REQUIREMENTS Calibrating-oil return temp. °C with thermometer : 40...48 : 42...50 electronically Inlet press., bar: 0,35 Calibrating nozzle-holder : 1 688 901 022 assembly Opening bar: 130...133 pressure Test inj. tubing : 1 680 750 073 Outside diameter : 6 x Wall thickness : 2 mm: 450 x Length Start of delivery mm : -Prestroke (from BDC): -Indicator setting: Piston stroke mm: 1.0 Outlet : A Injection-pump setting values Test specifications in parentheses

Speed 1/min: 1250 Setting value bar: 4,5...5,1 KSB solenoid-operated valve volt: -Full-load del. w/out charge press.: 1/min: 1250 Del.quantity cm3/ 1000H.: 31,5...32,5 KSB solenoid-operated volt: valve cm3/: 2,5 1000H.: (3,0) Dispersion Low-idle speed regulation: 1/min: 400 Speed Del.quantity cm3/ 1000H.: 4,0...8,0 KSB solenoid-operated valve volt: cm3/: 2,5 1000H.: (3,0) Dispersion Residual-Delivery Setting 1/min: 500 Speed Del.quantity cm3/ 1000H.: 1,0...5,0 KSB-Solenoid-Operated valve Volt : -Full-load speed regulation: 1/min: 2450 Speed Del.quantity cm3/ 1000H: 24,0...30,0 KSB solenoid-operated valve volt: -Start: Speed 1/min: 100 Del.quantity cm3/1000H.: 40,0 mind KSB solenoid-operated valve volt: -Load-dependent start of delivery: 1/min: 1250 KSB solenoid-operated volt: valve Inspection-pump test specifications Test specifications in parentheses Timing-device characteristic:

Supply-pump pressure:

Timing-device travel:

KSB solenoid-operated

Speed 1/min: 1250 Setting value mm: 3,8...4,2

volt: -

F14

valve

1st speed	+ Overflow : 55138 quantity cm3/10s: (40153)
KSB solenoid-operated valve volt: 12,0	Delivery-quant. and breakaway char.:
2nd speed 1/min: 310 TD travel mm: 2,24,6	1st speed 1/min: 2950 KSB solenoid-operated
mm: (2,24,6) KSB solenoid-operated valve volt: 12,0	+ valve volt: - + Del.quantity cm3/: 0,05,0 + 1000H.: (0,05,0)
3rd speed 1/min: 750 TD travel mm: 1,62,4 mm: (1,32,7)	+ 2nd speed 1/min: 2650 + KSB solenoid-operated + valve volt: -
KSB solenoid-operated valve volt: -	Del.quantity cm3/: 8,016,0 1000H.: (7,017,0)
4th speed	+ 3rd speed 1/min: 2450 + KSB solenoid-operated
mm: (3,34,7) KSB solenoid-operated valve volt: -	valve volt: - Del.quantity cm3/: 24,030,0 1000H.: (23,031,0)
5th speed 1/min: 2000 TD travel mm: 6,67,4 mm: (6,37,7)	+ 4th speed 1/min: 2250 + KSB solenoid-operated + valve volt: -
KSB solenoid-operated valve volt: -	+ Del.quantity cm3/: 31,133,1 + 1000H.: (29,834,4)
6th speed 1/min: 2250 TD travel mm: 7,68,4 mm: (7,38,7)	+ 5th speed 1/min: 2000 + KSB solenoid-operated + valve volt: -
KSB solenoid-operated valve volt: -	+ Del.quantity cm3/: 30,532,5 + 1000H.: (29,233,8)
Supply-pump pressure characteristic:	+ 6th speed 1/min: 1625 + KSB solenoid-operated + valve volt: -
1st speed 1/min: 750 Supply-pump	+ Del.quantity cm3/: 29,932,9 + 1000H.: (29,133,7)
pressure bar: 3,13,7 KSB solenoid-operated valve volt: -	<pre>7th speed 1/min: 1250 KSB solenoid-operated valve volt: -</pre>
2nd speed 1/min: 1250 Supply-pump	Del.quantity cm3/: 31,532,5 1000H.: (29,734,3)
pressure bar: 4,55,1 KSB solenoid-operated valve volt: -	+ 8th speed 1/min: 700 + KSB solenoid-operated + valve volt: -
3rd speed 1/min: 2250 Supply-pump	Del.quantity cm3/: 30,233,2 1000H: (29,434,0)
pressure bar: 7,07,6 KSB solenoid-operated valve volt: -	Zero delivery (stop):
Overflow quantity at overflow valve:	Electr. shutoff:
1st speed 1/min: 750 KSB solenoid-operated valve volt: -	Speed 1/min: 400 ELAB volt: - Del.quantity cm3/: 0,03,0
Oveflow : 4183 quantity cm3/10s: (2698) 2nd speed 1/min: 2250	max. 1000H.: -
KSB solenoid-operated valve volt: -	1st speed 1/min: 400
	Ī

KSB solenoid-operated valve volt: -Del.quantity cm3/: 4,0...8,0 1000H.: (2,0...10,0) High Idle: Speed 1/min: 500 Del.quantity cm3/: 7,7...11,7 1000H.: (5,7...13,7) KSB-Solenod-operated alve Volt : -Automatic starting fuel delivery: 1st speed 1/min: 210 KSB solenoid-operated valve volt: -Del.quantity cm3/: -ind. 1000H: 45,0 1/min: 310 2nd speed KSB solenoid-operated volt: valve Del.quantity cm3/: - max. 1000H: 45,0 Shutoff electromagnet: Cut-in min. voltage Rated voltage : 10,0 : 12,0 Mounting and assembly dimensions: Designation : 3,2...3,4 : 5,3...5,7 : 1,1...1,5 K mm KF mm MS mm SVS max. : 1,4 mm Remarks:

Note inst. in remarks column

Test sheet : VWW 1,6 X7 Edition : 10.11.88

replaces

Calibrating oil : ISO 4113

: VE 4/ 9F2250 R262 : 0 460 494 206 Injection pump

Type number Customer Part-No. :

Customer-specific information

Customer

Engine : 086T-1.6L

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter x Wall thickness : 2

mm: 840 x Length

Start of delivery

Prestroke mm : -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250

Charge press. hPa: 750 Setting value mm: 2,9...3,3

Supply-pump pressure:

1/min: 1250

Setting value bar: 4,2...4,8

1/min: 1500 Speed Charge press. hPa: 750

Del.quantity cm3/ 1000H: 43,5...44,5 Dispersion cm3/: 2,5 1000H: (3,0)

Full-load del. w/out charge press.:

Full-load del. with charge press.:

 $1/\min : 600$ Speed

Del.quantity cm3/

1000H.: 23,5...24,5

Low-idle speed regulation:

1/min: 375 Speed

Residual-Delivery Setting 1/min: 800 Speed

Del.quantity cm3/

1000H.: 2,5...3,5

Full-load speed regulation:

1/min: 2525 Speed Charge press. hPa: 750

Del.quantity cm3/

1000H: 14,0...18,0

Start:

Speed 1/min: 100 Del.quantity

cm3/1000H.: 35,0 mind

Load-dependent start of delivery:

1/min: 1250 Speed

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000 Charge press. hPa: 750

TD travel mm: 1,8...2,6 mm: (1,5...2,9)
2nd speed 1/min: 1250
Charge press. hPa: 750

mm: 2,9...3,3 mm: (2,4...3,8) TD travel

1/min: 1800 3rd speed

E17

Charge press. hPa: 750 TD travel mm: 4,95 mm: (4,6 4th speed 1/min: 2250 Charge press. hPa: 750 TD travel mm: 6,16 mm: (5,8 Supply-pump pressure character 1st speed 1/min: 600 Charge press. hPa: 750 Supply-pump pressure bar: 2,32 2nd speed 1/min: 1250 Charge press. hPa: 750	7,2) teristic:	Del.quantity cm3/: 43,544,5 1000H.: (41,846,2) 7th speed 1/min: 1000 Charge press. hPa: 300 Del.quantity cm3/: 33,534,5 1000H.: (31,037,0) 8th speed 1/min: 600 Charge press. hPa: 750 Del.quantity cm3/: 32,035,0 1000H: (30,536,5) 9th speed 1/min: 600 Charge press. hPa: Del.quantity cm3/: 23,524,5 1000H: (21,027,0) Zero delivery (stop):
Supply-pump pressure bar: 4,24 3rd speed 1/min: 2250 Charge press. hPa: 750 Supply-pump pressure bar: 7,07 Overflow quantity at overfl	,6	Electr. shutoff: Speed 1/min: 425 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: -
1st speed 1/min: 600 Oveflow : 4183 quantity cm3/10s: (269 2nd speed 1/min: 2250 Charge press. hPa: 750 Overflow : 5513 quantity cm3/10s: (401	8) + + + + + + + + + +	Idle delivery: 1st speed
1st speed 1/min: 1000 Charge-air pressure-setting point hPa: 300 LDA stroke mm: 6,8 Del.quantity cm3/: 33,5 1000H.: (31,0 2nd speed 1/min: 2700 Charge press. hPa: 750 Del.quantity cm3/: 0,06 1000H.: (0,0 3rd speed 1/min: 2525 Charge press. hPa: 750 Del.quantity cm3/: 14,0 1000H.: (12,0 4th speed 1/min: 2425 Charge press. hPa: 750 Del.quantity cm3/: 23,0 1000H.: (22,0 5th speed 1/min: 2250 Charge press. hPa: 750	34,5 .37,0) ,0 6,0) 18,0 .20,0)	High Idle: Speed 1/min: 525 Del.quantity cm3/: 7,09,0 1000H.: (4,012,0) Residual: Speed 1/min: 800 Del.quantity : 2,53,5 1000H.: (1,05,0) Automatic starting fuel delivery: 1st speed 1/min: 100 Del.quantity cm3/: - ind. 1000H: 35,0 2nd speed 1/min: 270 Del.quantity cm3/: - max. 1000H: 35,0
Del.quantity cm3/: 38,0 1000H.: (36,8 6th speed 1/min: 1500 Charge press. hPa: 750	.41,2) + +	Shutoff electromagnet: Cut-in min. voltage : 10,0

Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : 3,2...3,4 KF mm : 5,6...6,0 MS mm : 1,1...1,5

Remarks:

Correction at adjusting nut (46)

Note inst. in remarks column

: VWW 1,6 X9 Test sheet : 10.11..88 Edition

replaces

Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2250 R270 : 0 460 494 210

Type number

Customer-specific information

Customer

: 086-1.6L Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm: 840

Start of delivery mm : -Prestroke (from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1250 Setting value mm: 2,0...2,4

Supply-pump pressure:

1/min: 1250 Setting value bar: 4,0...4,6

Full-load del. w/out charge press.:

1/min: 1000 Speed

Del.quantity cm3/ 1000H.: 28,5...29,5 Dispersion cm3/: 2,5 1000H.: (3,0)

Low-idle speed regulation:

1/min: 375

Deliquantity cm3/

1000H.: 11,0...13,0 cm3/: 2,0 1000H.: (3,0)

Dispersion

Residual-Delivery Setting Speed 1/min: 550

Del.quantity cm3/

1000H.: 2,5...3,5

Full-load speed regulation:

Speed 1/min: 2475

Del.quantity cm3/ 1000H: 14,0...18,0

Start:

1/min: 100 Speed

Del.quantity

cm3/1000H.: 35,0 mind

Load-dependent start of delivery:

1/min: 1250 Speed

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000

mm: 0,9...1,7 mm: (0,6...2,0) 1/min: 1250 mm: 2,0...2,4 mm: (1,5...2,9) 1/min: 2250 TD travel

2nd speed

TD travel

3rd speed

mm: 6,3...7,1 mm: (6,0...7,4) TD travel

Supply-pump pressure characteristic:

1/min: 600 1st speed

Supply-pump

bar: 2,1...2,7 1/min: 1250 pressure

2nd speed

Supply-pump

bar: 4,0...4,6 1/min: 2250 pressure

3rd speed

Supply-pump bar: 6,9...7,5 pressure Overflow quantity at overflow valve: 1st speed 1/min: 600 Oveflow : 41...83 cm3/10s: (26...98) quantity 1/min: 2250 2nd speed : 55...138 Overflow quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1st speed 1/min: 2700 1/min: 2475 2nd speed Del.quantity cm3/: 14,0...20,0) 3rd speed 1/min: 2400 Del.quantity cm3/: 18,0...28,0 1000H.: (17,0...29,0) 4th speed 1/min: 2250
Del.quantity cm3/: 27,5...29,5
1000H: (26,3...30,7) 5th speed 1/min: 1000 Del.quantity cm3/: 28,5...29,5 1000H.: (26,8...31,2) 6th speed 1/min: 600 Del.quantity cm3/: 22,0...25,0 1000H.: (20,5...26,5) Zero delivery (stop): Electr. shutoff: 1/min: 425 Speed ELAB volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1st speed 1/min: 375
Del.quantity cm3/: 11,0..13,0
1000H.: (8,0...16,0) 1/min: 425 2nd speed Del.quantity cm3/: 5,5...8,5 1000H.: (3,0...11,0) High Idle: Speed 1/min: 525 Del.quantity cm3/: 7,0...9,0 1000H.: (340...12,0)

1/min: 500 Speed Del.quantity : 3,2...5,2 1000H.: (1,7...6,7) Automatic starting fuel delivery: 1st speed 1/min: 180 Del.quantity cm3/: -1000H: 35,0 ind. 2nd speed 1/min: 380 Del.quantity cm3/: - max. 1000H: 30,0 Shutoff electromagnet: Cut-in : 10,0 min. voltage : 12,0 Rated voltage Mounting and assembly dimensions: Designation : 3,2...3,4 : 5,6...6,0 mm KF mm MS : 1,2...1,6 mm Remarks:

Residual:

Note inst. in remarks column

: ONA 3,4 D Test sheet : 10.11.88 Edition

replaces

Calibrating oil : ISO 4113

: VE 4/ 9F1000 R315 : 0 460 494 213 Injection pump

Type number

Customer-specific information

Customer : ONAN

Engine : L423D

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 mm: 840 x Length

Start of delivery mm : -Prestroke (from BDC): -

Indicator setting:

Piston stroke mm: 1.0 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 700

Setting value mm: 2,3...2,7

Supply-pump pressure:

1/min: 700 booa2

E22

Setting value bar: 2,9...3,5

Full-load del. w/out charge press.:

1/min : 1000

Del.quantity cm3/ 1000H.: 48,5...49,5

cm3/: 3,0 1000H.: (3,0) Dispersion

Low-idle speed regulation:

1/min: 700 Speed

Del.quantity cm3/

1000H.: 22,5...26,5

Dispersion

cm3/: 3,0 1000H.: (3,0)

Full-load speed regulation:

1/min: 1100 Speed

Del.quantity cm3/

1000H: 30,0...34,0

Start:

1/min: 100 Speed Del.quantity

mind cm3/1000H.: 55,0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 400 1st speed

TD travel mm: 0,6...1,4mm: (0,3...1,7)

1/min: 700 2nd speed

mm: 2,3...2,7 mm: (1,8...3,2) TD travel

1/min: 1000 3rd speed

TD travel

mm: 3,6...4,4 mm: (3,3...4,7)

Supply-pump pressure characteristic:

1/min: 400 1st speed

Supply-pump

bar: 1,6...2,2 pressure

1/min: 700 2nd speed

Supply-pump

bar: 2,9...3,5 1/min: 1000 pressure

3rd speed

Supply-pump

pressure bar: 4,0...4,6

Overflow quantity at overflow valve:

1st speed 1/min: 700 Oveflow : 41...83 cm3/10s: (26...98) quantity 2nd speed 1/min: 1000 : 55...138 Overflow quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1/min: 1220 1st speed cm3/: 0,0...3,0 Del.quantity 1000H.: (0,0...3,0) 1/min: 1150 2nd speed Del.quantity cm3/: 11,5...18,5 1000H.: (11,0...19,0) 1/min: 1100 3rd speed Del.quantity cm3/: 30,0...34,0 1000H.: (28,0...36,0) 4th speed 1/min: 1000 Del.quantity cm3/: 48,5...49,5 1000H.: (47,0...51,0) 1/min: 700 5th speed Del.quantity cm3/: 47,0...50,0 1000H.: (46,5...50,5) Zero delivery (stop): Idle delivery: 1st speed 1/min: 700 Del.quantity cm3/: 22,5..26,5 1000H.: (21,0..28,0) 1/min: 800 2nd special Deliquantity cm3/: 1000H.: 2nd speed cm3/: 9,0...15,0 1/min: 900 3rd speed Del.quantity cm3/: 0.0...3.0 1000H.: (0,0...3,0) Automatic starting fuel delivery: 1/min: 300 1st speed Deliquantity cm3/: -1000H: 60,0 ind. 2nd speed 1/min: 400 Del.quantity cm3/: - max. 1000H: 50,5 Shutoff electromagnet: Cut-in min. voltage : 10,0 Rated voltage : 12,0 Mounting and assembly dimensions: Designation : 3,2...3,4 K mm

Remarks:

E23

Note inst. in remarks column

: VWW 1,6 X12 Test sheet Edition : 10.11.88

replaces

Calibrating oil : ISO 4113

: VE 4/ 9F2250 R293 Injection pump

: 0 460 494 221 Type number

Customer-specific information

Customer

Engine : 086T-1.6L

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48

: 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter x Wall thickness : 2 mm: 840 x Length

Start of delivery mm : -Prestroke (from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

1/min: 1250 Charge press. hPa: 750

Setting value mm: 3,0...3,4

Supply-pump pressure:

1/min: 1250 Speed Charge press. hPa: 750

Setting value bar: 4,9...5,5

Full-load del. with charge press.:

Speed 1/min: 1500 Charge press. hPa: 750

Del.quantity cm3/ 1000H.: 42,0...43,0 Dispersion cm3/: 2,5

1000H : (3,0)

Full-load del. w/out charge press.:

 $1/\min : 700$ Speed

Del.quantity cm3/ 1000H.: 26,5...27,5

Low-idle speed regulation:

1/min: 425 Speed

Deliquantity cm3/

1000H.: 9,0...11,0

cm3/: 2,5 Dispersion 1000H.: (3,0)

Residual-Delivery Setting 1/min: 550 Speed

Del.quantity cm3/ 1000H.: 2,0...3,0

Full-load speed regulation:

1/min: 2525 Speed Charge press. hPa: 750

Del.quantity cm3/

1000H: 13,0...17,0

Start:

1/min: 100 Speed Del.quantity cm3/1000H.: 35,0 mind

Load-dependent start of delivery:

Speed 1/min: 1250

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1000 1st speed Charge press. hPa: 750

mm: 1,7...2,5 mm: (1,4...2,8) TD travel

1/min: 1250 2nd speed

Charge press. hPa: 750
TD travel mm: 3.0...3,4
mm: (2,5...3,9)
3rd speed 1/min: 1800

Charge press. hPa: 750

TD travel mm: 5,6...6,4 mm: (5,3...6,7)
4th speed 1/min: 2250
Charge press. hPa: 750 Del.quantity cm3/: 42,0...43,0 1000H.: (40,3...44,7) 7th speed 1/min: 900 Charge press. hPa: 300
Del.quantity cm3/: 32,5...33,5
1000H.: (30,0...36,0) mm: 7,0...7,8 mm: (6,7...8,1) TD travel 1/min: 700 8th speed Supply-pump pressure characteristic: Charge press. hPa: 750 Del.quantity cm3/: 34,0...37,0 1000H: (32,5...38,5) 9th speed 1/min: 700 1st speed 1/min: 700 Charge press. hPa: 750 9th speed Charge press. hPa: Supply-pump pressure bar: 3,3...3,9 2nd speed 1/min: 1250 Charge press. hPa: 750 Del.quantity cm3/: 26,5...27,5 1000H: (24,0...30,0) 1/min: 600 10th speed Charge press. hPa: -Supply-pump Del.quantity cm3/: 25,0...30,0 1000H: (22,5...32,5) bar: 4,9...5,5 1/min: 2250 pressure 3rd speed Charge press. hPa: 750 Supply-pump Zero delivery (stop): pressure bar: 7,7...8,3 Electr. shutoff: Overflow quantity at overflow valve: 1/min: 425 1/min: 700 1st speed Speed ELAB volt: Del.quantity cm3/: 0,0...3,0
max. 1000H.: -Charge press. hPa: Oveflow : 4 : 41...83 quantity cm3/10s: (26...98) 2nd speed 1/min: 2250 2nd speed Charge press. hPa: 750 Idle delivery: : 55...138 Overflow quantity cm3/10s: (40...153) 1/min: 425 1st speed Del.quantity cm3/: 9,0...11,0 1000H.: (4,5...15,5) Delivery-quant. and breakaway char.: 1/min: 900 High Idle: 1st speed Charge-air pressure-setting Speed 1/min: 525 Del.quantity cm3/: 9,0...11,0 1000H.: (5,0...15,0) point hPa: 300 LDA stroke mm: 5,5
Del.quantity cm3/: 32,5...33,5
1000H.: (30,0...36,0) 1/min: 2650 Residual: 2nd speed Speed 1/min: 500 Del.quantity : 2,5...4,5 1000H.: (0,0...7,0) Automatic starting fuel delivery: 1st speed 1/min: 150 Del.quantity cm3/: -1000H: 35,0 1/min: 350 2nd speed Charge press. hPa: 750
Del.quantity cm3/: 36,3...38,3
1000H.: (35,1...39,5)
6th speed 1/min: 1500
Charge press. hPa: 750 Del.quantity cm3/: -max. 1000H: 37,0 Shutoff electromagnet:

```
Cut-in
```

min. voltage : 10,0 Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : K1 KF mm : -

KF mm : -MS mm : 1,1...1,5

Correction at adjusting nut (46)

Operate control lever after each manifold—pressure compensator pressure change.

Adjust damper rate:
Engine speed n = 1000 min -1
Fuel delivery = 11.0...13.0 cm 3 /
1000 strokes
(8.0...16.0) cm 3 /
1000 strokes

Note inst. in remarks column

Test sheet : VWW 1,6 X8 Edition : 10.11.88

replaces

Calibrating oil : ISO 4113

: VE 4/ 9F2250 R322 : 0 460 494 237 Injection pump

Type number

Customer-specific information

Customer : VW

Engine : 086-1.61

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer: 40...48 : 42...50 electronically

Inlet press., bar: 0,35

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening.

pressure bar: 147...150

Test inj. tubing : 1 680 750 017

Outside diameter x Wall thickness : 2 mm: 840 x Lenath

Start of delivery Prestroke mm : -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500 Charge press. hPa: 750 Setting value mm: 3,8...4,2

Supply-pump pressure:

1/min: 1500 Speed Charge press. hPa: 750 Setting value bar: 5,6...6,2 Full-load del. with charge press.:

1/min: 1500 Charge press. hPa: 750

Del.quantity cm3/ 1000H: 42,0...43,0 Dispersion cm3/: 2,5 1000H: (3,0)

Full-load del. w/out charge press.:

 $1/\min : 700$ Speed

Del.quantity cm3/

1000H.: 26,5...27,5

Low-idle speed regulation:

1/min: 425 Speed Charge press. hPa: -

Del.quantity cm3/ 1000H.: 9,0...11,0 Dispersion cm3/: 2,5 1000H.: (3,0) Residual-Delivery Setting 1/min: 550 Speed

Del.quantity cm3/ 1000H.: 2,0...3,0

Full-load speed regulation:

1/min: 2525 Speed Charge press. hPa: 750

Del.quantity cm3/

1000H: 13,0...17,0

Start:

Speed 1/min: 100 Del.quantity cm3/1000H.: 35,0 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000 Charge press. hPa: 750

TD travel mm: 1,8...2,6 mm: (1,5...2,9)
2nd speed 1/min: 1500
Charge press. hPa: 750

mm: 3,8...4,2 mm: (3,3...4,7) TD travel

1/min: 1800 3rd speed Charge press. hPa: 750

mm: 4,8...5,6 mm: (4,5...5,9) 1/min: 2250 TD travel

4th speed

Charge press. hPa: TD travel mm: mm:	750 6,16,9 (5,97,2)	† †	Del.quantity cm3/: 32,533.5 1000H.: (30,036,0) 8th speed 1/min: 700 Charge press. hPa: 750
Supply-pump pressure	e characteristic:	Ī	Del.quantity cm3/: 34,037,0 1000H: (32,538,5)
1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: 2nd speed 1/min:	750	+++++++++++++++++++++++++++++++++++++++	9th speed 1/min: 700 Charge press. hPa: - Del.quantity cm3/: 26,527,5 1000H: (24,030,0) 10th speed 1/min: 600
Charge press. hPa: Supply-pump pressure bar: 3rd speed 1/min:	75U 5,66,2	+++++++++++++++++++++++++++++++++++++++	Charge press. hPa: - Del.quantity cm3/: 25,030,0 1000H: (22,532,5)
Charge press. hPa: Supply-pump pressure bar:	750	+	Zero delivery (stop):
Overflow quantity at		I	Electr. shutoff:
1st speed 1/min: Charge press. hPa: Oveflow : quantity cm3/10s:	700 4183 (2698)	+++++++++++++++++++++++++++++++++++++++	Speed 1/min: 425 ELAB volt: - Del.quantity cm3/: 0,03,0 max. 1000H.: -
2nd speed 1/min: Charge press. hPa:	2250	‡	Idle delivery:
Overflow : quantity cm3/10s:	55138 (40153)	†	1st speed 1/min: 425 Del.quantity cm3/: 9,011,0 1000H.: (4,515,5)
Delivery-quant. and	·	‡	High Idle:
1st speed 1/min: Charge-air pressure- point hPa: LDA stroke mm: Del.quantity cm3/: 1000H.:	-setting 300	<u> </u>	Speed 1/min: 525 Del.quantity cm3/: 9,011,0 1000H.: (5,015,0)
1000H.: 2nd speed 1/min:	(30,036,0) 2650		Residual:
Charge press. hPa: Del.quantity cm3/:	750 0,06,0 (0,06,0)	+++++++++++++++++++++++++++++++++++++++	Speed 1/min: 500 Del.quantity : 2,54,5 1000H.: (0,07,0)
Charge press. hPa: Del.quantity cm3/:	750	<u>†</u>	Automatic starting fuel delivery:
	(11,019,0) 2450 750		1st speed 1/min: 150 Del.quantity cm3/: - ind. 1000H: 35,0
	(25,537,5) 2250 750	+	2nd speed 1/min: 350 Del.quantity cm3/: - max. 1000H: 37,0
	(35,139,5)	I	Shutoff electromagnet:
Charge press. hPa: Del.quantity cm3/: 1000H.:	750 42,043,0 (40,344,7)	+	Cut-in min. voltage : 10,0 Rated voltage : 12,0
7th speed 1/min: Charge press. hPa:		‡	Mounting and assembly dimensions:

Designation

K mm : K1
KF mm : MS mm : 1,1...1,5
SVS max. mm : 3,1

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Correction at adjusting nut (46)

Adjust damper rate:
Engine speed n = 1000 min -1
Fuel delivery = 11.0...13.0 cm 3 /
1000 strokes
(8.0...16.0) cm 3 /
1000 strokes

Note inst. in remarks column

Test sheet : OPE 1,5 A : 11.02.88 Compl. date: : 18.11.88 Edition

replaces

Calibrating oil : ISO 4113

: VE 4/ 8F2600 R284 Injection pump

Type number : 9 460 620 001

Customer Part-No. : Customer Part-No. :

Customer-specific information Customer : ISU7U

: 1,5 L 4EC1 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 electronically : 42...50

Inlet press., bar: 0,35

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

bar: 147...150 pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6 x Wall thickness : 2 x Length mm : 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250 Setting value mm: 3,0...3,4

Supply-pump pressure:

1/min: 1250 Setting value bar: 3,5...4,1

Full-load del. w/out charge press.:

Speed 1/min : 1500

Del.quantity cm3/ 1000H.: 33,0...34,0 Dispersion cm3/: 2,5

1000H.: -

Low-idle speed regulation:

1/min: 400 Speed

Del.quantity cm3/ 1000H.: 7,5...11,5

Dispersion cm3/: 2,5

1000H.: -

Full-load speed regulation:

1/min: 2800

Del.quantity cm3/ 1000H: 13,0...19,0

Start:

1/min: 100 Speed Del.quantity cm3/1000H.: 45,0 mind

Load-dependent start of delivery:

1/min: 1250 Speed

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600 mm: 0,6...1,4 mm: (0,3...1,7) 1/min: 1250 mm: 3,0...3,4 mm: (2,5...3,9) TD travel

2nd speed

TD travel

1/min: 1500 3rd speed

mm: 4,1...4,7 mm: (3,7...5,1) TD travel

1/min: 2000 4th speed TD travel

5th speed TD travel

mm: 6,1...6,9 mm: (5,8...7,2) 1/min: 2300 mm: 7,0...7,8 mm: (6,7...8,1)

Supply-pump pressure characteristic:

1/min: 600 1st speed

Supply-pump

bar: 2,0...2,6 pressure

F02

1/min: 1250 2nd speed Supply-pump bar: 3,5...4,1 1/min: 2000 pressure 3rd speed Supply-pump bar: 5,3...5,9 1/min: 2300 pressure 4th speed Supply-pump bar: 6,0...6,6 pressure Overflow quantity at overflow valve: 1st speed 1/min: 600 Oveflow! : 41...83 quantity cm3/10s: (26...98) 1/min: 2600 2nd speed : 55...138 Overflow quantity cm3/10s: (40...153) Delivery-quant. and breakaway char.: 1/min: 2850 2nd speed Del.quantity cm3/: 13,0...19,0 1000H.: (12,0...20,0) 1/min: 2600 3rd speed Del.quantity cm3/: 28,7...31,7 1000H.: (27,9...32,5) 1/min: 2400 4th speed Del.quantity cm3/: 28,7...31,7 1000H.: (28,0...32,4) 5th speed 1/min: 2000 Del.quantity cm3/: 30,0...33,0 1000H.: (29,5...33,5) 1/min: 1500 cm3/: 33,0...34,0 6th speed Del.quantity cm3/: 33,0...35,8) 1/min: 1000 7th speed cm3/: 30,7...33,7 Del.quantity 1000H.: (30,2...34,2) 1/min: 600 8th speed Del.quantity cm3/: 30,4...33,4 1000H: (28,9...34,9) Zero delivery (stop): Electr. shutoff: Speed 1/min: 400 volt: -Del.quantity cm3/: 0,0...3,0 max. 1000H.: -Idle delivery: 1st speed 1/min: 400

Del.quantity cm3/: 7,5...11,5 1000H.: (5,5...13,5) 1/min: 500 2nd speed Del.quantity cm3/: 1.0...6.0 1000H.: (0.0...7.0) 3rd speed 1/min: 700 Del.quantity cm3/: 0,0...2,0 1000H.: -Automatic starting fuel delivery: 1/min: 300 1st speed Del.quantity cm3/: -1000H: 23,0 ind. 2nd speed 1/min: 500 Del.quantity cm3/: - max. 1000H: 36,0 Shutoff electromagnet: Cut-in : 10,0 min. voltage Rated voltage : 12,0 Mounting and assembly dimensions: Designation K : 3,2...3,4 : 5,6...5,8 : 1,6...2,0 KF mm MS mm SVS max. mm Remarks: APPLICATION Opel - Corsa

Note remarks

: KHD 1 g 29 : 16.12.88 Test sheet Edition Replaces : 5.10.88 Test oil : ISO-4113

Combination no. : 0 400 463 154

Injection pump

Pump designation : PES3A80D410/3RS1350

EP type number : 0 410 483 023

Governor

: RSV325...1175A8C2223 Governor design.

: 0 420 232 482 Governer no.

Customer-spec. information Customer

: F3L912 Engine

: 33.0 : 2350 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 1.90...2.00 : (1.85...2.05)

F04

Rack travel in mm : 9.00...12.00 Firing order : 1- 3- 2

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 800 1st speed

Rack travel in mm : 10.20...10.50

Del.quantity cm3/: 4.8...4.9

100 s: (4.6...5.0)

cm3 : 0.2Spread

100 s: (0.4)

2nd speed rpm : 325.0 Rack travel in mm : 6.2...6.4 Del.quantity cm3/: 1.0...1.6

100 s: (0.8...1.7)

cm3 : 0.2Spread 100 s: (0.3)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

: 48.0...49.0 Del.quantity : (46.5...50.5) 1000

: 2.50 Spread cm3

1000 : (4.00)

RATED SPEED

1st version

Control Lever

position degrees: 52...60

Testing:

1st rack travel in: 8.10

rpm : 1215...1225 Speed

2nd rack travel in: 4.00

rpm : 1240...1270 Speed 3rd rack travel in: 4.00 Speed rpm : 1245...1275 4th rack travel in: 1420 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 15...23 Setting point w/out bumper spring Speed : 325 rpm Rack travel in mm : 5.8 Testina: rpm Speed : 100 Minimum rack trave: 19.50 rpm : 325 Rack travel in mm : 6.20...7.40 Rack travel in mm : 2.00 : 465...525 Speed rom TORQUE CONTROL Torque control curve - 1st version rpm : 1175 1st speed Rack travel in m: 9.10...9.40 2nd speed rpm : 500 Rack travel in m: 10.60...10.70 3rd speed rpm : 800 Rack travel in m: 10.20...10.50 FUEL DELIVERY CHARACTERISTICS 1st version : 1175 Speed rpm Del.quantity cm3/: 46.0...50.0 1000 s: (44.0...52.0) : 800 Speed rpm Del.quantity cm3/: 33.0...34.0 1000 s: (31.0...36.0) cm3 : 2.50Spread 1000 s: (4.00) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.10 rpm : 1215...1225 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 100.0...110.0 1000 s: (97.0...113.0) Rack travel in mm: 17.00...17.30

Remarks: : RENAULT

APPLICATION

Tractor (tractor engines)

F05

Note remarks

Test sheet : KHD 3,0 e Edition : 18.10.88 Replaces : -

Test oil : ISO-4113

Combination no. : 0 400 464 134

Injection pump

Pump designation : PES4A80D410/3RS1356

EP type number : 0 410 484 022

Governor

Governor design. : RSV325...1150A8C494-

3<u>L</u>

Governer no. : 0 420 232 514

Customer—spec. information Customer : KHD

Engine : F3L912

1st version kW : 31.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00

: (1.85...2.05)

Rack travel in mm : 9.00...12.00 Firing order : 1-3-2

Phasing : 0-90-270

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 9.60...9.70

Del.quantity cm3/ : 5.4...5.5

100 s: (5.3...5.7)

Spread cm3: 0.2

100 s: (0.4)

2nd speed rpm : 325.0

Rack travel in mm : 6.9...7.1 Del.quantity cm3/ : 1.2...1.8

100 s: (1.0...1.9)

Spread cm3 : 0.2 100 s: (0.3)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 900

Del.quantity : 54.5...55.5

1000 : (53.0...57.0)

Spread cm3 : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 8.60

Speed rpm : 940...950

2nd rack travel in: 4.00

F06

Speed rpm : 975...1005 3rd rack travel in: 4.00 Speed rpm : 995...1025 4th rack travel in: 1155 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring rpm : 325° Rack travel in mm: 6.5 Testina: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 325 Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00 Speed rpm : 425...485 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 9.60...9.70 2nd speed rpm : 500 Rack travel in m: 9.60...9.80 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 500 Del.quantity cm3/ : 48.0...50.0 1000 s: (46.0...52.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.60 rpm : 940...950 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 100.0...110.0 1000 s: (97.0...113.0) Rack travel in mm : 16.40...16.80 Remarks: **APPLICATION**

F07

Compressor

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 12,8 a1 Edition : 16.12.88 Replaces Test oil : ISO-4113 Combination no. : 0 400 648 085 Injection pump Pump designation : PE8A95D32OLS2421 EP type number : 0 410 698 994 Governor Governor design. : RQ25D/1250AB845DR : 0 420 203 095 Governer no. Customer-spec. information Customer : MAN Engine : D 2538 MT : 235.0 1st version kW : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.00 Test nozzle holder : 0 681 343 009 assembly Openina pressure, bar : 172...175 Test lines : 1 680 750 003 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

: 0-45-90-135-180-225-Phasing 270-315 Tolerance + - ° : 0.50 (0.75) : 8 Time to cyl. no. BASIC SETTING 1st speed rpm: 1250 Rack travel in mm : 11.50...11.60 Del.guantity cm3/: 11.4..:11.6 100 s: (11.2...11.8) cm3 : 0.3Spread 100 s: (0.6) rpm : 250.0 2nd speed Rack travel in mm : 6.9...7.1 Del.quantity cm3/ : 1.8...2.6 100 s: (1.5...2.8) cm3 : 0.3 Spread 100 s: (0.5)GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Speed Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1250 Aneroid pressure h: 700 : 114.5...116.5 Del.quantity 1000 : (112.5...118.5) : 3.50 Spread cm3 1000 : (6.00)RATED SPEED 1st version Setting point: rpm : 600 Speed Rack travel in mm : 20.0 Testing: 1st rack travel in: 10.50 Speed rpm : 1290...1305 2nd rack travel in: 4.00

: 8- 7- 2- 6- 3- 5-4- 1

Firing order

F08

Prestroke mm

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 1.70...1.80

: (1.65...1.85)

Speed rpm : 1350...1380 LOW IDLE 1 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 6.0 Testing: Speed rpm : 100 Minimum rack trave: 8.40 Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00 rpm : 330...370 Speed TORQUE CONTROL Dimension a mm : 0.20 Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 11.50...11.60 2nd speed rpm : 500
Rack travel in m: 12.00...12.10
3rd speed rpm : 1075
Rack travel in m: 11.70...11.90 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed hPa : -Pressure : 11.00...11.10 Rack travel mm Measurement 1/min : 500 Speed 1st pressure hPa : 200 Rack travel in m: 11.20...11.40 2nd pressure hPa : 240 Rack travel in m: 11.70...11.80 3rd pressure hPa : 700 Rack travel in m: 12.00...12.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 800 Del.quantity cm3/: 119.0...121.0 1000 s: (117.0...123.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 97.5...99.5 1000 s: (95.5...101.5) RACK STOP ADJUSTMENT

F09

Speed rpm : 250

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1290...1305

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 167.0...177.0
1000 s: (164.0...180.0)
Rack travel in mm : 17.80...18.20

Remarks:

Note remarks

Test sheet : KHD 12,7 g Edition : 22.12.88

Replaces : 9.82 : ISO-4113 Test oil

Combination no. : 0 400 648 118

Injection pump

Pump designation : PE8A95D410LS2451 EP type number : 0 410 698 992

Governor

Governor design. : RQV750AB1041L : 0 420 212 109 Governer no.

Customer-spec. information Customer : KHD

: F8L413F Engine

1st version kW : 114.0 : 1500 Rated speed : 129.0 : 1500 2nd version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

assembly : 0 681 343 009

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

```
: 2.00...2.10
: (1.95...2.15)
Prestroke mm
```

Rack travel in mm : 9.00...12.00 Firing order : 1-8-7-2-6-5-4-3

: 0-45-90-135-180-225-Phasina

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 720 1st speed

Rack travel in mm : 10.60...10.70

Del.quantity cm3/: 9.7...9.9

100 s: (9.5...10.1)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.5...6.7 Del.quantity cm3/: 1.3...1.9

100 s: (1.0...2.1) cm3 : 0.3Spread

100 s: (0.5)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

. 79.5...81.5 1000 : (77.5...83.5) Del.quantity

: 3.00 Spread cm3 1000 : (6.00)

2nd version

Speed rpm : 700 Del.quantity cm3/ : 93.5...95.5 1000 s: (91.5...97.5)

cm3 : 3.0 Spread

1000 s: (6.0)

RATED SPEED

1st version

Control lever

position degrees: 21...29

Testing:

1st rack travel in: 9.60

Speed rpm : 753...758

2nd rack travel in: 4.50

Speed rpm : 775...785

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.60 Speed rpm : 753...758

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 116.5...126.5 1000 s: (113.5...129.5)

Remarks:

APPLICATION Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MA': 14,6 a Edition : 09.12.88 Replaces : ISO-4113 Test oil : 0 400 648 137 Combination no. Injection pump Pump designation : PE8A95D32OLS2672 : 0 410 698 985 EP type number Governor Governor design. : RQ250/1150AB1191R : 0 420 201 638 Governer no. Customer-spec. information : MAN Customer Engine : D2848 M/MF : 206.0 1st version kW : 2300 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening : 172...175 pressure, bar Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

: 8- 7- 2- 6- 3- 5-4- 1 Firing order Phasing : 0-45-90-135-180-225-270-315 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 8 BASIC SETTING 1st speed rpm: 700 Rack travel in mm : 12.60...12.70 Del.quantity cm3/: 11.1...11.3 100 s: (10.9...11.5) Spread cm3 : 0.3100 s: (0.4) 2nd speed rpm : 250.0 Rack travel in mm : 7.1...7.3 Del.quantity cm3/ : 1.1...1.5 100 s: (0.8...1.7) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 600 Speed Rack travel in mm : 13.10...13.90 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 700 : 111.5...113.5 : (109.5...115.5) : 3.50 Del.quantity 1000 cm3 Spread 1000 : (4.50)RATED SPEED 1st version Setting point: Speed rpm Rack travel in mm : 13.5 Testing: 1st rack travel in: 10.90 rpm : 1195...1210 Speed

2nd rack travel in: 4.00

Speed

rpm : 1245...1275

F12

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

: 1.50...1.60

: (1.45...1.65)

4th rack travel in: 1350 Speed rpm : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm : 7.2 Testing: Speed rpm : 100 Minimum rack trave: 8.60 Speed rpm: 250
Rack travel in mm: 7.10...7.30
Rack travel in mm: 2.00 Speed : **3**85...425 rpm TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 11.70...12.10 2nd speed rpm : 600 Rack travel in m: 12.60...12.70

3rd speed rpm : 1005

Rack travel in m: 12.40...12.60

4th speed rpm : 1085 Rack travel in m: 11.90...12.20 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 500 Del.quantity cm3/: 113.0...116.0 1000 s: (110.5...118.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.90 rpm : 1195...1210 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

Remarks:

Note remarks

Test sheet : MAN 14,6 a1 Edition : 22.12.88

Replaces : -

Test oil : ISO-4113

Combination no. : 0 400 648 138

Injection pump

Pump designation : PE8A95D32OLS2672 EP type number : 0 410 698 985

Governor

Governor design. : RQV250...1150AB1190R

Governer no. : 0 420 213 103

Customer-spec. information Customer : MAN

Engine : D2848 M/MF

1st version kW : 206.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60 : (1.45...1.65)

Rack travel in mm : 9.00...12.00

Firing order : 8-7-2-6-3-5-4-1

Phasing : 0-45-90-135-180-225-

270-315

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 11.1...11.3

100 s: (10.9...11.5)

Spread cm3: 0.3

100 s: (0.4)

2nd speed rpm : 250.0

Rack travel in mm : 7.3...7.5 Del.quantity cm3/ : 1.1...1.5

100 s: (0.8...1.7)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 200

travel mm : 0.50...0.70

2nd speed rpm : 600

travel mm : 4.30...4.60

3rd speed rpm : 1000

travel mm : 6.70...6.90

4th speed rpm : 1250

travel mm : 9.10...9.30

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

Speed rpm: 1185

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 700

Del.quantity : 111.5...113.5

1000 : (109.5...115.5)

Spread cm3 : 3.50

1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 60...68

Testina:

1st rack travel in: 11.10

Speed rpm: 1195...1210 2nd rack travel in: 4.00

Speed rpm : 1280...1310 4th rack travel in: 1400

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 9...17

Testina:

rpm : 100 Speed Minimum rack trave: 8.90

Speed rpm : 250 Rack travel in mm : 7.30...7.50

CONSTANT REGULATION

rpm : 280...390 Speed

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 12.10...12.20

2nd speed rpm : 500

Rack travel in m: 12.60...12.70

3rd speed rpm : 1055

Rack travel in m: 12.40...12.60 4th speed rpm : 1105 Rack travel in m: 12.10...12.20

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 1150 rpm

BREAKAWAY

1st version

1mm rack travel less than

F15

full load rack tr: 11.10

rpm : 1195...1210 Speed

STARTING FUEL DELIVERY

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

: KHD 12,7 p1 : 11.11.88 : 7.86 Test sheet Edition Replaces

: ISO-4113 Test oil

Combination no. : 0 400 648 140

Injection pump

Pump designation : PE8A95D410LS2608 EP type number : 0 410 698 988

Governor

Governor design. : RQ300/1250AB929L : 0 420 200 053 Governer no.

Customer-spec. information Customer : KHD

: F8L413F Engine

: 169.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 : (1.95...2.15) Prestroke mm

Rack travel in mm : 9.00...12.00

F16

: 1-8-7-2-6-5-Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.30...9.40

Del.quantity cm3/: 8.5...8.7

100 s: (8.3...8.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.0)

cm3 : 0.3Spread 100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 600 Speed

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

: 85.5...87.5 1000 : (83.5...89.5) cm3 : 3.50 1000 : (6.00) Del.quantity

Spread

RATED SPEED

1st version

Setting point:

rpm : 600 Speed Rack travel in mm : 16.0

Testina:

1st rack travel in: 8.30

rpm : 1295...1310 Speed

2nd rack travel in: 4.00

rpm : 1345...1375 Speed

LOW IDLE 1 Speed

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.5

Testina:

Speed rpm : 100 Minimum rack trave: 8.00 rpm : 300 Speed

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 410...450

TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 9.30...9.40

2nd speed rpm : 650

Rack travel in m: 9.70...9.80

3rd speed rpm : 945

Rack travel in m: 9.50...9.70

4th speed rpm : 1020

Rack travel in m: 9.30...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 750 Speed

Del.quantity cm3/: 83.0...86.0 1000 s: (80.5...88.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.30

rpm : 1295...1310 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Remarks:

Note remarks

Test sheet : KHD 12,7 p6 : 30.09.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 400 648 142

Injection pump

Pump designation : PE8A95D410LS2608 EP type number : 0 410 698 988

Governor

Governor design. : RQV350...1250AB990-1

: 0 420 212 182 Governer no.

Customer-spec. information Customer : KHD

Engine : F8L413F

1st version kW : 174.0 2nd version kW : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. Values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 : (1.95...2.15) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-8-7-2-6-5-4-3

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1225

Rack travel in mm : 10.00...10.10

Del.quantity cm3/: 8.9...9.1

100 s: (8.7...9.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm : 6.4...6.6 Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7) cm3 : 0.5 Spread

100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 350 : 1.20...1.30 travel mm 2nd speed rpm : 600 : 3.80...4.00 travel mm rpm : 900 3rd speed

: 5.20...5.50 travel mm

rpm : 1315 4th speed

: 9.30...9.70

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1225 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

travel mm

rpm : 1225 Speed

Del.quantity : 89.0...91.0 1000 : (87.0...93.0) Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 61...69

Testing:

1st rack travel in: 9.00

Speed rpm : 1265...1275

2nd rack travel in: 4.00 Speed rpm: 1300...1330 4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 9...17

Testing:

rpm : 100 Speed Minimum rack trave: 8.00

Speed rpm : 350

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

rpm : 370...480 Speed

TORQUE CONTROL

Dimension a mm : 0.70

Torque control curve - 1st version

1st speed rpm : 1225

Rack travel in m: 10.00...10.10

2nd speed rpm : 500
Rack travel in m: 10.70...10.80
3rd speed rpm : 970

Rack travel in m: 10.50...10.70 4th speed rpm : 1080 Rack travel in m: 10.10...10.30

START CUT-OUT

Speed 1/min: 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700 Del.quantity cm3/ : 90.5...93.5 1000 s: (88.0...96.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.00

rpm : 1265...1275 Speed

F19

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.70...15.30

Remarks:

Note remarks

Test sheet : KHD 15,8 c2 : 09.01.89 Edition

Replaces : 3.85 Test oil : ISO-4113

Combination no. : 0 400 649 188

Injection pump

Pump designation : PE10A95D610/4LS2452

EP type number : 0 410 699 998

Governor

Governor design. : RQV300...1150AB988DL

: 0 420 214 229 Governer no.

Customer-spec. information Customer : KHD

: F10L413F Engine

1st version kW : 216.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 : (1.95...2.15) Prestroke mm

Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-5- 8- 7- 2

: 0-27-72-99-144-171-Phasina

216-243-288-315 : 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 9.20...9.30

Del.quantity cm3/: 8.4...8.6

100 s: (8.2...8.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 0.9...1.4 100 s: (0.6...1.6)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -1 rpm : 1150 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

: 84.5...86.5 Del.quantity 1000 : (82.5...88.5)

: 3.00 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 61...69

Testing:

1st rack travel in: 8.20

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

: 1225...1255 Speed rpm

4th rack travel in: 1350

rpm : 0.00...1.00Speed

F20

LOW IDLE 1 Control lever

position degrees: 8...16

Testing:

Speed rpm : 100 Minimum rack trave: 7.50 Speed rpm: 300
Rack travel in mm: 5.90...6.10
Speed rpm: 750

Maximum rack trave: 1.00

CONSTANT REGULATION

rpm : 300...450 Speed

TORQUE CONTROL

Dimension a mm : -Torque control curve - 1st version

1st speed

st speed rpm : 1150
Rack travel in m: 9.20...9.30

2nd speed

nd speed rpm : 1000 Rack travel in m: 9.40...9.60

rpm : 700 3rd speed

Rack travel in m: 9.70...9.80

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

: 700 Speed man

Del.quantity cm3/: 83.0...86.0 1000 s: (80.5...88.5)

rpm : 400 Speed

Del.quantity cm3/: 75.0...79.0 1000 s: (72.5...81.5)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.20

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

: 100 Speed rom

Rack travel in mm : 13.20...14.20

F21

LOW IDLE

Speed rpm : 300

Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 9.0...14.0 1000 s: (6.5...16.5) Spread cm3 : 3.00

1000 s: (5.00)

Remarks:

Note remarks

: ENA 6,5 c Test sheet : 22.12.88 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 400 656 161

Injection pump

Pump designation : PE6A90D321RS2690 EP type number : 0 410 696 182

Governor

Governor design. : RQV250...1300AB1238R

: 0 420 213 109 Governer no.

Customer-spec. information Customer : ENASA

: 94T 3AW 31500 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °€ : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina .

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25

: (2.10...2.30)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ}$: 0.50 (0.75)

BASIC SETTING

rpm : 13001st speed

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 9.2...9.3

100 s: (9.0...9.5)

Spread cm3 : 0.3

100 s: (0.4)

2nd speed rpm : 250.0 Rack travel in mm: 8.3...8.5 Del.quantity cm3/: 1.2...1.8

100 s: (1.0...2.0) cm3 : 0.2

Spread 100 s: (0.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

: 1.00...1.20 travel mm

rpm : 300 2nd speed

: 2.30...2.70 travel mm

rpm : 1340 3rd speed

: 8.60...8.80 travel mm rpm : 1465

4th speed : 9.70...10.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1300 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 700

Del.quantity : y2.3....95.5)

: 3.00 Spread cm3

1000 : (4.50)

RATED SPEED

1st version Control lever

position degrees: 41...49

Testing: 1st rack travel in: 11.20 rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1445...1475 4th rack travel in: 1600 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 11...19 Testing: Speed : 100 rpm Minimum rack trave: 9.80 rpm : 250 Speed Rack travel in mm : 8.30...8.50 CONSTANT REGULATION rpm : 285...390 Speed TORQUE CONTROL Dimension a mm : 0.30 Torque control curve - 1st version 1st speed rpm : 1300
Rack travel in m: 12.20...12.30
2nd speed rpm : 500
Rack travel in m: 12.40...12.60 3rd speed rpm : 800 Rack travel in m: 12.30...12.50 4th speed rpm : 1000 Rack travel in m: 12.20...12.40 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 700 Speed rpm Pressure : 12.40...12.60 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 10.60...10.70 2nd pressure hPa : 490 Rack travel in m: 12.30...12.40 3rd pressure hPa : 300 Rack travel in m: 10.80...11.00

1st version Aneroid pressure h: 700 rpm : 900 Speed Del.quantity cm3/: 89.5...91.5 1000 s: (87.0...94.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 56.0...57.0 1000 s: (54.0...59.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.20 Speed rpm : 1340...1350 STARTING FUEL DELIVERY Remarks: Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Speed

START CUT-OUT

1/min: 170 (190)

FUEL DELIVERY CHARACTERISTICS

Note remarks

: HAN 7,2 b 2 Test sheet

Edition : 09.01.89

Replaces Test oil : ISO-4113

Combination no. : 0 400 674 046

Injection pump

Pump designation : PE4A95D42ORS2662 : 0 410 694 995 EP type number

Governor

Governor design. : RSV350...750A0C2228-

: 0 420 233 216 Governer no.

Customer-spec. information Customer : HANOMAG

: D943 A1/G Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.15...2.25 Prestroke mm : (2.10...2.30)
Rack travel in mm : 9.00...12.00
Firing order : 1- 2- 4- 3

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 700 1st speed

Rack travel in mm : 11.70...11.80

Del.quantity cm3/: 10.9...11.1

100 s: (10.7...11.3)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.8)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 109.0...111.0 Del.quantity 1000 : (107.0...113.0)

: 3.50 cm3 Spread

: (6.00) 1000

RATED SPEED

1st version

Control Lever

position degrees: 76...84

Testing:

1st rack travel in: 10.70

rpm : 740...750 Speed

2nd rack travel in: 4.00 Speed rpm : 780...810

4th rack travel in: 940

rpm : 0.30...1.40Speed

LOW IDLE 1 Control lever

position degrees: 65...73

Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 6.5

Testing:

rpm : 100 Speed Minimum rack trave: 19.50 rpm : 350

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00 Speed rpm : 355...415

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 700

Rack travel in m: 11.70...11.80

2nd speed rpm : 500

Rack travel in m: 11.70...11.90

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70

rpm : 740...750 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0) Rack travel in mm : 19.50...21.00

Remarks:

Cold-start testing of RSV governor according to VDT-I-420/114.

APPLICATION Generator set

Note remarks

Test sheet : ENA 6,5 b Edition : 09.01.89

Replaces

Test oil : ISO-4113

: 0 400 676 140 Combination no.

Injection pump

Pump designation : PE6A90D320RS2413 : 0 410 696 177 EP type number

Governor

: RSV250...1300A1c751R Governor design.

Governer no. : 0 420 233 228

Customer-spec. information Customer : ENASA

: 94A 1AO IB 650 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.15...2.25 Prestroke mm

: (2.10...2.30)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1180

Rack travel in mm : 10.60...10.70

Del.guantity cm3/: 7.4...7.5

100 s: (7.2...7.7)

Spread cm3 : 0.3

100 s: (0.4)

2nd speed rpm : 250.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/ : 1.0...1.6

100 s: (0.8...1.8)

cm3 : 0.2Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1180 Speed

Del.quantity : 74.0...75.0 1000 : (72.0...77.0)

: 3.00 cm3

Spread 1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 57...65

Testina:

1st rack travel in: 9.60

rpm : 1220...1230 Speed

2nd rack travel in: 4.00

rpm : 1240...1270 Speed

3rd rack travel in: 4.00

Speed rpm : 1240...1270 4th rack travel in: 1405 Speed rpm : 0.30...1.40Speed

LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring rpm : 250 Rack travel in mm : 5.6 Testing: rpm : 100 Speed Minimum rack trave: 19.50 rpm : 250 Speed Rack travel in mm: 6.00...6.20 Rack travel in mm: 2.00 Speed rpm: 335...395 TORQUE CONTROL Torque control curve - 1st version rpm : 1180 1st speed Rack travel in m: 10.60...10.70 2nd speed rpm : 300 Rack travel in m: 11.90...12.40 3rd speed rpm : 450 Rack travel in m: 10.60...10.80 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 600 Speed Del.quantity cm3/: 58.0...60.0 1000 s: (55.5...62.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.60 Speed rpm : 1220...1230 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 160.0...170.0 1000 s: (157.0...173.0) Rack travel in mm : 19.50...21.00 Remarks:

Note remarks

: DAF 8,3 n 7 Test sheet : 30.09.88 Edition Replaces : 9.3.87 Test oil : ISO-4113

Combination no. : 0 400 676 178

Injection pump

Pump designation: PE6A95D410RS2575 EP type number : 0 410 696 984

Governor

Governor design. : RSV250...750A7C2201L

: 0 420 232 444 Governer no.

Customer-spec. information Customer : DAF

Engine : DHTD 825

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

: 1 680 750 015 Test Lines

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 : (1.95...2.15) Prestroke mm

Rack travel in mm : 7.50...10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50

& maximum rack tra: 21.00 Difference ° CS : 3.00...4.00

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 11.0...11.2

100 s: (10.8...11.4)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 250.0 2nd speed Rack travel in mm : 6.0...6.2 Del.quantity cm3/: 0.7...1.3

100 s: (0.5...1.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

Del.quantity : [10.0...114.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 12.20

Speed rpm : 750...755 2nd rack travel in: 4.00 Speed rpm : 780...795 4th rack travel in: 950

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 16...24 Setting point w/out bumper spring

rpm : 250 Rack travel in mm : 6.1

Testing:

: 100 Speed rpm Minimum rack trave: 19.50 : 250 Speed rom

Rack travel in mm : 6.00...6.20

Rack travel in mm : 2.00

rpm : 255...315 Speed

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

STARTING FUEL DELIVERY

rpm : 100 Speed

Rack travel in mm : 19.50...21.00

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 6.00...6.20

Del.quantity cm3/ : 7.0...13.0

1000 s: (5.5...14.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

APPLICATION Generator

Note remarks

Test sheet : HAN 10,8 L1 : 09.01.89 Edition

Replaces

Test oil : ISO-4113

: 0 400 676 191 Combination no.

Injection pump

Pump designation : PE6A95D32ORS2557-1

: 0 410 696 980 EP type number

Governor

: RSV350...1100A8C2217 Governor design.

-2R

: 0 420 233 221 Governer no.

Customer-spec. information : HANOMAG Customer

: D964 T/60E Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25

: (2.10...2.30)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1080 1st speed

Rack travel in mm : 10.10...10.20

Del.guantity cm3/: 8.5...8.7

100 s: (8.3...8.9)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 6.5...6.7 Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.8)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : 5.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080

Del.quantity : 85.0...89.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.10

rpm : 1120...1130 Speed

2nd rack travel in: 4.00

rpm : 1150...1180 Speed

3rd rack travel in: 4.00

rpm : 1175...1205 Speed

4th rack travel in: 1340 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 6.1 Testing: Speed rpm : 100 Minimum rack trave: 19.50 rpm : 350 Speed Rack travel in mm : 6.50...6.70 Rack travel in mm : 2.00 : 510...570 Speed rom TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1080 Rack travel in m: 10.10...10.20 2nd speed rpm : 500
Rack travel in m: 11.10...11.20
4th speed rpm : 880 Rack travel in m: 10.50...10.70 FUEL DELIVERY CHARACTERISTICS 1st version : 500 Speed rpm Del.quantity cm3/: 83.5...86.5 1000 s: (81.0...89.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.10 rpm : 1120...1130 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm: 19.50...21.00 Remarks: Cold-start testing of RSV governor

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according to VDT-I-420/114.

Note remarks

: KHD 4,1 e 1 Test sheet : 10.1.89 Edition

: 12.9.86 Replaces : TSO-4113 Test oil

Combination no. : 0 400 834 002

Injection pump

Pump designation : PES4A85D41D/3RS2707

: 0 410 884 948 EP type number

Governor

Governor design. : RQV300...1250AB1089-

: 0 420 212 185 Governer no.

Customer-spec. information Customer : KHD

: BF4L913T Engine

: 64.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6,00X2,00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.50...2.60 Prestroke mm

: (2.45...2.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2

: 0-90-180-270 Phasina Tolerance + - ° : 0.50(0.75)

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 6.9...7.0

100 s: (6.7...7.2)

cm3 : 0.3Spread

100 s: (0.45)

2nd speed rpm : 300 Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 1.0...1.6 100 s: (0.8...1.8)

cm3 : 0.25Spread

100 s: (0.45)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed : 1.00...1.10 travel mm

: 380 2nd speed rpm

travel mm : 2.30...2.70 : 455

3rd speed rpm

: 3.10...3.60 travel mm : 1295 4th speed rom

: 9.10...9.20 travel mm

: 1380 5th speed rpm

: 10.00...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1250 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

: 1250 Speed rpm

: 69.5...70.5 Del.quantity 1000 : (67.5...72.5)

: 3.0 Spread cm3

: (4.5) 1000

RATED SPEED

1st version Control lever position degrees: 63...71 Testing: 1st rack travel in: 11.00 Speed rpm : 1290...1300 2nd rack travel in: 4.00 Speed rpm : 1365...1395 4th rack travel in: 1500 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 6...14 Testing: Speed : 100 rpm Minimum rack trave: 6.40 Speed rpm : 300 Rack travel in mm : 4.90...5.10 Rack travel in mm : 2.00 Speed rpm : 355...415 TORQUE CONTROL Dimension a mm : 0.60 Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 12.00...12.10 2nd speed rpm : 650 Rack travel in m: 12.60...12.70

3rd speed rpm : 915

Rack travel in m: 12.40...12.60 4th speed rpm : 985 Rack travel in m: 12.00...12.30 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/ : 58.5...60.5 1000 s: (56.0...63.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.00 rpm : 1290...1300 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 15.30...15.70 Remarks:

Note remarks

Test sheet : MAN 11,4 b3 Edition : 02.12.88 : 12.9.86 Replaces

: ISO-4113 Test oil

Combination no. : 0 400 836 031

Injection pump

Pump designation: PES6A95D410LS2639-2

: 0 410 896 910 EP type number

Governor

Governor design. : RQ250/1100AB1137-9L

: 0 420 200 091 Governer no.

Customer-spec. information

Customer : MAN

: D2566MF/200 Engine

1st version kW : 162.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 1.50...1.60 : (1.45...1.55) Prestroke mm

Rack travel in mm : 9.00...12.00

G06

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.30...14.40

Del.quantity cm3/: 12.8...13.0

100 s: (12.6...13.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0 Rack travel in mm : 7.4...7.6 Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.8)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 600 Rack travel in mm: 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 128.0...130.0 Del.quantity 1000 : (126.0...132.0)

: 3.50 Spread. cm3

1000 : (6.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rom Rack travel in mm : 16.0

Testing:

1st rack travel in: 11.80

rpm : 1145...1160 Speed

2nd rack travel in: 4.00

rpm : 1240...1270

4th rack travel in: 1350

Speed rpm : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 6.0 Testing: Speed rpm : 100 Minimum rack trave: 7.50 rpm : 250 Speed Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 360...400 TORQUE CONTROL Dimension a mm : 0.60 Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 12.80...12.90 rpm : 600 2nd speed Rack travel in m: 14.30...14.40 3rd speed rpm : 865 Rack travel in m: 13.80...14.00 4th speed rpm : 940 Rack travel in m: 13.10...13.30 FUEL DELIVERY CHARACTERISTICS 1st version Speed : 500 rom Del.quantity cm3/: 128.0...131.0 1000 s: (125.5...133.5) Speed rpm : 1100 Del.quantity cm3/ : 120.0...124.0 1000 s: (117.5...126.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.80 rpm : 1145...1160 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 105.0...115.0 1000 s: (102.0...118.0) Rack travel in mm : 15.30...15.60 Remarks: : MAN-NR. 2-7729 Set idle stop at 250 min -1 to a control-rod travel of 6.0 mm

Note remarks

Test sheet : MAN 11,4 j1 : 09.12.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 400 836 032

Injection pump

Pump designation : PES6A95D410LS2639-2

: 0 410 896 910 EP type number

Governor

: RQV250...1100AB1177-Governor design.

: 0 420 212 174 Governer no.

Customer-spec. information Customer : MAN

: D2566MF Engine

: 162.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60

: (1.45...1.55)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 14.30...14.40

Del.quantity cm3/: 12.8...13.0

100 s: (12.6...13.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0 Rack travel in mm : 7.4...7.6 Del.quantity cm3/ : 1.0...1.6 100 s: (0.7...1.8)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 200

: 0.70...0.90 travel mm com : 800

2nd speed travel mm

: 5.20...5.50 : 1200 3rd speed rpm travel mm : 7.90...8.10

4th speed : 1400 rpm

: 9.70...10.20 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1260

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 128.0...130.0 Del.quantity 1000 : (126.0...132.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testina:

1st rack travel in: 11.80

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1275...1305 4th rack travel in: 1400

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 12...20

Testing:

Speed rpm : 100 Minimum rack trave: 9.00

Speed rpm: 250 Rack travel in mm: 7.40...7.60

CONSTANT REGULATION

rpm : 320...440 Speed

TORQUE CONTROL

Dimension a mm : 1.45

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.80...12.90

2nd speed rpm : 500 Rack travel in m: 14.30...14.40

3rd speed rpm : 875

Rack travel in m: 13.90...14.10 4th speed rpm : 965

Rack travel in m: 13.10...13.40

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500 Del.quantity cm3/ : 128.0...131.0 1000 s: (125.5...133.5)

rpm : 1100

Del.quantity cm3/: 120.0...124.0

1000 s: (117.5...126.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 105.0...115.0 1000 s: (102.0...118.0)

Rack travel in mm : 15.30...15.60

Remarks:

: MAN-NR. 2-7731

Set idle stop at 250 min -1 to a

control-rod travel of 7.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD 6,1 s Edition : 27.10.88 Replaces Test oil : ISO-4113 : 0 400 836 036 Combination no. Injection pump Pump designation : PES6A85D410/3RS2761 EP type number : 0 410 886 895 Governor : RQV300...1250AB1188-Governor design. 1L : 0 420 212 205 Governer no. Customer-spec. information Customer : BF6L913 Engine 1st version kW : 118.0 : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening | pressure, bar : 172...175 : 1 680 750 014 Test lines Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm : 1250 Rack travel in mm : 11.60...11.70 Del.quantity cm3/: 8.3...8.4 100 s: (8.1...8.6) cm3 : 0.3Spread 100 s: (0.5) rpm : 300.0 2nd speed Rack travel in mm : 7.3...7.5 Del.quantity cm3/: 0.8...1.4 100 s: (0.6...1.6) cm3 : 0.2 Spread 100 s: (0.4) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 300 1st speed 1.20...1.30 travel mm : 370 2nd speed rpm 2.30...2.70 travel mm 3rd speed : 485 rpm travel mm : 2.80...3.40 : 1295 4th speed rpm : 8.50...8.60 travel mm : 1385 5th speed rpm : 9.50...9.70 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1265 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1250 Aneroid pressure h: 700 Del.quantity : 83.0...86.0) : 3.00 cm3 Spread 1000 : (5.00)

per values

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

: 2.50...2.60

: (2.45...2.65)

RATED SPEED

1st version Control lever

position degrees: 62...70

Testina:

1st rack travel in: 10.60

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1375...1405 4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 11...19

Testing:

: 100 Speed rpm Minimum rack trave: 8.90

Speed rpm : 300 Rack travel in mm : 7.30...7.50

CONSTANT REGULATION

rpm : 355...465 Speed

TORQUE CONTROL

Dimension a mm : 0.70

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 11.60...11.70

2nd speed

nd speed rpm : 500
Rack travel in m: 12.40...12.50
rd speed rpm : 750

3rd speed

Rack travel in m: 12.10...12.30

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm

hPa : Pressure

: 10.90...11.00 Rack travel mm

Measurement

Speed 1/min : 500

1st pressure hPa : 350

Rack travel in m: 11.30...11.50

3rd pressure hPa : 700

Rack travel in m: 12.40...12.50

START CUT-OUT

Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 750 Del.quantity cm3/ : 82.5...84.5 1000 s: (80.0...87.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 60.5...61.5 1000 s: (58.5...63.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 110.0...120.0

1000 s: (107.0...123.0)

Rack travel in mm : 17.00...17.40

Remarks:

On activation of the starting solenoid, the start position must be reached.

Note remarks

Test sheet : KHD 6,1 t

Replaces

Test oil : ISO-4113

: 0 400 836 037 Combination no.

Injection pump

Pump designation : PES6A85D410/3RS2761

EP type number : 0 410 886 895

Governor

Governor design. : RQ300...1250AB935DL

: 0 420 202 267 Governer no.

Customer-spec. information Customer : KHD

: BF6L913T Engine

: 96.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.50...2.60 Prestroke mm : (2.45...2.65) Rack travel in mm : 9.00...12.00

: 28.11.88 Edition

: 0-60-120-180-240-300 Phasing

: 1-5-3-6-2-4

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

Firing order

rpm : 1250 1st speed

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 7.0...7.1

100 s: (6.8...7.3)

cm3 : 0.3Spread

100 s: (0.5)

rpm : 300.02nd speed Rack travel in mm: 7.6...7.8 Del.quantity cm3/: 0.8...1.4

100 s: (0.6...1.6) cm3 : 0.2

Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 750

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1250 Speed

: 70.5...71.5 Del.quantity 1000 : (68.5...73.5)

: 3.00 Spread cm3

1000 : (5.00)

RATED SPEED

1st version

Setting point:

: 750 Speed rpm Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.70

rpm : 1295...1310 Speed

2nd rack travel in: 4.00

rpm : 1355...1385 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 6.6 Testina: rpm : 100 Speed Minimum rack trave: 8.00 rpm : 300 Speed Rack travel in mm : 6.50...6.70 Rack travel in mm : 2.00 Speed rpm : 530...570 TORQUE CONTROL Dimension a mm : 0.45 Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 10.70...10.80 nd speed rpm : 800 Rack travel in m: 11.90...12.10 2nd speed 3rd speed rpm : 910 Rack travel in m: 11.60...11.80 4th speed rpm : 1030 Rack travel in m: 11.10...11.30 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version rpm : 800 Speed Del.quantity cm3/: 66.5...69.5 1000 s: (64.0...72.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.70 rpm : 1295...1310 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 110.0...120.0 1000 s: (107.0...123.0) Rack travel in mm : 17.00...17.40 Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD 6,1 t 1 Edition : 28.11.88 Replaces Test oil : ISO-4113 Combination no. : 0 400 836 039 Injection pump Pump designation : PES6A85D410/3RS2761 EP type number : 0 410 886 895 Governor Governor design. : RQ300/1250AB1070-1L : 0 420 200 111 Governer no. Customer-spec. information Customer : KHD : BF6L913 Engine : 118.0 1st version kW Rated speed : 2500 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.50...2.60

Rack travel in mm : 9.00...12.00

: (2.45...2.65)

: 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING rpm : 1250 1st speed Rack travel in mm : 12.30...12.40 Del.guantity cm3/: 8.7...8.8 100 s: (8.5...9.0) Spread cm3 : 0.3100 s: (0.5) rpm : 300.0 2nd speed Rack travel in mm: 7.3...7.5 Del.quantity cm3/: 0.8...1.4 100 s: (0.6...1.6) cm3 : 0.2 Spread 100 s: (0.4) GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 1000 Speed Rack travel in mm : 17.80...19.20 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1250 Aneroid pressure h: 700 Del.quantity : 87.5...90.5) : 3.00 Spread cm3 1000 : (5.00) RATED SPEED 1st version Setting point: : 1000 rpm Rack travel in mm : 18.5 Testing: 1st rack travel in: 11.30 rpm : 1295...1310 Speed 2nd rack travel in: 4.00 rpm : 1370...1400 Speed LOW IDLE 1

G14

Prestroke mm

Setting point w/out bumper spring

: 300 rpm Speed Rack travel in mm: 6.0

Testina:

rpm : 100 Speed Minimum rack trave: 7.50 rpm : 300 Speed

Rack travel in mm: 5.90...6.10 Rack travel in mm: 2.00

Speed : 500...540 rpm

TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version

rpm : 1250 1st speed

Rack travel in m: 12.30...12.40

3rd speed rpm : 720

Rack travel in m: 13.10...13.30

4th speed rpm : 870

Rack travel in m: 12.50...12.70

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm

Rack travel mm : 11.30...11.40

Measurement

1/min: 500 Speed

1st pressure hPa : 300 Rack travel in m: 11.70...11.90

3rd pressure hPa : 700

Rack travel in m: 12.90...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 750 Del.quantity cm3/ : 88.5...90.5 1000 s: (86.0...93.0)

rpm : 500 Speed

Del.quantity cm3/: 62.0...64.0

1000 s: (60.0...66.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30

Speed rpm : 1295...1310 STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 110.0...120.0 1000 s: (107.0...123.0) Rack travel in mm : 17.00...17.40

Remarks:

On activation of the starting solenoid, the start position must be reached.

Note remarks

Test sheet : MB 4,0 a 11 Edition : 22.12.88

Replaces

: ISO-4113

Test oil

: 0 400 844 091 Combination no.

Injection pump

Pump designation : PES4A90D410RS2666-2

: 0 410 894 033 EP type number

Governor

: RQV300...1400AB1065-Governor design.

12L

: 0 420 212 207 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

: 0M364 Engine

1st version kW : 61.0 : 2800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.25...2.35 Prestroke mm

: (2.20...2.40)

Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2

: 0-90-180-270 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 5.9...6.0

100 s: (5.7...6.2)

cm3 : 0.3Spread

100 s: (0.5)

rpm : 300.0 2nd speed Rack travel in mm : 8.6...8.8 Del.quantity cm3/: 0.8...1.2

100 s: (0.6...1.4)

Spread cm3 : 0.2 100 s: (0.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.80...1.30 travel mm

: 500 2nd speed rpm travel mm

: 2.30...2.80 3rd speed : 750 rpm

: 4.10...4.30 travel mm

1500 4th speed rpm

: 8.50...8.60 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

: 59.0...60.0 Del.quantity 1000 : (57.0...62.0)

: 3.00 cm3 Spread

: (5.00) 1000

RATED SPEED

1st version

Control lever

position degrees: 58...66

Testing:

1st rack travel in: 9.50

Speed rpm : 1440...1450 2nd rack travel in: 4.00 Speed rpm : 1535...1565 4th rack travel in: 1700 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 20...28 Testing: rpm : 100 Speed Minimum rack trave: 10.20 Speed rpm : 300 Rack travel in mm : 8.60...8.80 CONSTANT REGULATION Speed rpm : 540...680 TORQUE CONTROL Dimension a mm : 1.00 Torque control curve - 1st version 1st speed rpm : 1400 Rack travel in m: 10.50...10.60 2nd speed rpm : 450 Rack travel in m: 11.50...11.60 3rd speed rpm : 850 Rack travel in m: 10.90...11.10 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version rpm : 450 Speed

Del.quantity cm3/: 45.0...47.0 1000 s: (42.5...49.5)

rpm : 850 Speed

Del.quantity cm3/: 47.5...50.5 1000 s: (45.0...53.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.50

Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0)

Rack travel in mm : 17.00...17.40

Remarks:

Set shutoff stop to contact at 3.0...3.5 mm control-rod travel.

G17

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 5,7 n 22 Test sheet : 02.12.88 Edition Replaces Test oil : ISO-4113 Combination no. : 0 400 846 233 Injection pump Pump designation : PES6A90D410RS2293 : 0 410 896 031 EP type number Governor Governor design. : RQV300...1425AB781L Governer no. : 0 420 212 046 Customer-spec. information Customer : DAIMLER-BENZ Engine : 0M352 : 96.0 1st version kW : 2850 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.00 Test nozzle holder : 0 681 343 009 assembly **Opening** pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.15...2.25

Rack travel in mm : 9.00...12.00

: (2.10...2.30)

: 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - □ : 0.50 (0.75) BASIC SETTING rpm: 1400 1st speed Rack travel in mm : 9.70...9.80 Del.quantity cm3/: 6.1...6.2 100 s: (5.9...6.4) cm3 : 0.3Spread 100 s: (0.4) 2nd speed rpm : 300.0 Rack travel in mm : 7.5...7.7 Del.quantity cm3/ : 0.9...1.5 100 s: (0.7...1.7) Spread cm3 : 0.2100 s: (0.4) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 250 : 0.60...1.00 travel mm 2nd speed rom : 640 : 3.20...3.60 travel mm rpm : 1035 3rd speed : 5.50...5.80 travel mm : 1425 4th speed rpm : 8.00...8.20 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1420 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1400 , : 61.5...62.5 1000 : (59.5...64.5) Del.quantity : 3.00 Spread cm3 1000 : (4.50) RATED SPEED

1st version

G18

Prestroke mm

Control lever position degrees: 61...69 Testing: 1st rack travel in: 8.70 Speed rpm : 1455...1465 2nd rack travel in: 4.00 Speed rpm : 1550...1580 4th rack travel in: 1700 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 12...20 Testing: rpm : 100 Speed Minimum rack trave: 9.10 rpm : 300 Speed Rack travel in mm : 7.50...7.70 Speed rpm: 875 Maximum rack trave: 1.00 CONSTANT REGULATION rpm : 370...520 Speed START CUT-OUT Speed 1/min: 220 (240) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.70 rpm : 1455...1465 Speed INTERMEDIATE RATED SPEED Control lever position degrees: 58...66 Rack travel in mm : 8.70 rpm : 1305...1320 Speed Rack travel in mm : 4.00 Speed rpm : 1400...1430 STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 71.0...81.0 1000 s: (68.0...84.0)

Rack travel in mm : 13.90...14.30

Remarks:

G19

Note remarks

: MB 5,7 n 23 : 09.12.88 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 400 846 262

Injection pump

Pump designation : PES6A90D410RS2293Z

EP type number : 0 410 896 037

Governor

Governor design. : RQV300...1425AB781L

: 0 420 212 046 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM 352A

1st version kW : 124.0 : 2850 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25

: (2.10...2.30)

Rack travel in mm : 9.00...12.00

G20

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1375

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 7.4...7.5

100 s: (7.2...7.7)

Spread cm3 : 0.3

100 s: (0.4)

rpm : 300.02nd speed

Rack travel in mm : 7.4...7.6 Del.quantity cm3/: \alpha.9...1.5

100 s: (0.7...1.7)

Spread cm3 : 0.2100 s: (0.4)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1460

: 8.40...8.60 travel mm

2nd speed : 950 rpm

: 5.20...5.50

travel mm

3rd speed : 775 rpm travel mm : 4.10...4.60

4th speed 550 rpm

2.70...3.00

travel mm

: 300 5th speed rpm

: 0.70...2.20 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 Speed rpm : 1420

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1375

: 74.0...75.0 Del quantity

: (72.0...77.0) 1000

: 3.00 Spread cm3

: (4.50) 1000

RATED SPEED

1st version Control Lever position degrees: 61...69 Testina: 1st rack travel in: 10.00 Speed rpm : 1435...1445 2nd rack travel in: 4.00 rpm : 1430...1460 Speed 4th rack travel in: 1700 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 12...20 Testina: Speed rpm : 100 Minimum rack trave: 9.10 Speed rpm : 300 Rack travel in mm : 7.40...7.60 CONSTANT REGULATION rpm : 350...600 Speed START CUT-OUT Speed 1/min: 220 (240) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1435...1445 Speed INTERMEDIATE RATED SPEED Control lever position degrees: 58...66 Rack travel in mm : 10.00 rpm : 1305...1320 Rack travel in mm : 4.00 rpm : 1430...1460 Speed STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 71.0...81.0 1000 s: (68.0...84.0)

Rack travel in mm : 13.90...14.30

Remarks:

G21

Note remarks

Test sheet : MAN 9,7 n : 28.11.88 Edition : 10.82 Replaces Test oil : ISO-4113

Combination no. : 0 400 846 308

Injection pump

Pump designation : PES6A95D41ORS2128 EP type number : 0 410 896 973

Governor

Governor design. : RQ200/1100AB860DL : 0 420 202 248 Governer no.

Customer-spec. information

Customer : RABA U. DAEWOO

Engine : D2156MTN5

: 188.3 : 2200 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 014 Test Lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 1.95...2.05 Prestroke mm : (1.90...2.10)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 12.6...12.8

100 s: (12.4...13.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 200.02nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.7)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 700

Anerous Del.quantity 1000 : 126.5...128.5 : (124.5...130.5) : 3.00

Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.30

rpm : 1145...1160 Speed

2nd rack travel in: 4.00

rpm : 1195...1225 Speed

G22

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 200 Rack travel in mm : 6.0

Testing:

Speed rpm : 100 Minimum rack trave: 7.40 rpm : 200 Speed

Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00
Speed rpm: 310...350

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 12.30...12.40

2nd speed rpm : 600

Rack travel in m: 12.80...12.90

3rd speed rpm : 1015

4th speed

Rack travel in m: 12.60...12.80 th speed rpm : 1070 Rack travel in m: 12.30...12.60

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm hPa : 700 Pressure

Rack travel mm : 12.80...12.90

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 10.10...10.30

2nd pressure hPa : 250

Rack travel in m: 12.10...12.20

3rd pressure hPa : 165

Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

rpm : 800 Speed

Del.quantity cm3/: 131.0...134.0

1000 s: (129.0...136.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 81.5...85.5 1000 s: (79.5...87.5)

RACK STOP ADJUSTMENT

rpm : 200 Speed

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30

rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

: 100 Speed man

Del.quantity cm3/: 151.5...161.5

1000 s: (148.5...164.5)

Rack travel in mm : 16.20...16.80

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

Note remarks

Test sheet : MAN 11,1 y : 10.01.89 Edition : 25.3.88 Replaces Test oil : ISO-4113

: 0 400 846 325 Combination no.

Injection pump

Pump designation : PES6A95D410LS2409

EP type number

: 0 410 896 962

Governor

Governor design: : RQ250/1150AB839DL

: 0 420 202 247 Governer no.

Customer-spec. information : MAN Customer

: D2556MX/MXF Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.30...1.40 : (1.25...1.45)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 11.50...11.60

Del.guantity cm3/: 11.7...11.9

100 s: (11.5...12.1)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 250.02nd speed Rack travel in mm : 6.4...6.6 Del.quantity cm3/ : 1.0...1.6 100 s: (0.7...1.8)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -1

rpm : 600

Rack travel in mm : 15.40...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 117.5...119.5 1000 : (115.5...121.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

rpm Rack travel in mm : 15.9

Testina:

1st rack travel in: 11.50 Speed rpm : 1195...1210 2nd rack travel in: 4.00

Speed rpm : 1250...1280

3rd rack travel in: 4.00

LOW IDLE 1

Setting point w/out bumper spring

: 250 Speed rpm Rack travel in mm : 6.5

Testing:

Speed rpm : 150 Minimum rack trave: 7.20 rpm : 250 Speed

Rack travel in mm: 6.40...6.60 Rack travel in mm: 2.00 Speed rpm: 320...360

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 11.50...11.60

2nd speed rpm : 500

Rack travel in m: 11.90...12.00

3rd speed rpm : 925

Rack travel in m: 11.80...11.90

4th speed rpm : 1000

Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm3/: 116.0...119.0 1000 s: (114.0...121.0)

rpm : 500 Speed Del.quantity cm3/: <118.5 1000 s: (<120.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50 peed rpm : 1195...1210

Speed

INTERMEDIATE RATED SPEED

Rack travel in mm: 4.00

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 116.5...126.5 1000 s: (113.5...129.5) Rack travel in mm: 13.70...14.30

Remarks:

: MAN-NR. 1-7620

Set idle stop at 250 min -1 to a

control-rod travel of 6.5 mm

Note remarks

: KHD 9,6 k 6 : 11.11.88 Test sheet

Edition Replaces : 8.6.88 Test oil : ISO-4113

Combination no. : 0 400 846 432

Injection pump

Pump designation : PES6A95D410RS2416

EP type number : 0 410 896 961

Governor

Governor design. : RQ750AB1240L : 0 420 200 110 Governer no.

Customer-spec. information Customer : KHD

: F6L413FR Engine

1st version kW : 122.0 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x-600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 1.90...2.00 Prestroke mm : (1.85...2.05) Rack travel in mm : 9.00...12.00

G26

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasina

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 10.40...10.50

Del.guantity cm3/: 10.1...10.3

100 s: (9.9...10.5)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 250.02nd speed Rack travel in mm : 5.3...5.5 Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.8)

cm3 : 0.3 Spread 100 s: (0.5)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 101.0...103.0 Del.quantity 1000 : (99.0...105.0)

3.50 cm3 Spread

1000 : (6,00)

RATED SPEED

1st version

Testing:

1st rack travel in: 9.40

rpm : 750...755 Speed

2nd rack travel in: 3.70 Speed rpm: 780...785

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 700

Rack travel in m: 10.40...10.50

2nd speed rpm : 500

Rack travel in m: 10.40...10.60

START CUT-OUT

1/min: 640 (660) Speed

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.40 Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm : 12.90...13.20

Remarks:

APPLICATION Generator set

Note remarks

Test sheet : MAN 11,4 b2 Edition : 23.09.88 : 26.2.88 Replaces Test oil : ISO-4113

Combination no. : 0 400 846 507

Injection pump

Pump designation : PES6A95D410LS2639 : 0 410 896 925 EP type number

Governor

: RQ250...1100AB1137-6 Governor design.

: 0 420 200 088 Governer no.

Customer-spec. information Customer

: D2566MUH/200 Engine

: 147.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

: 0 681 343 009 assembly

Openina (

: 172...175 pressure, bar

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.70...1.80

: (1.65...1.85)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 12.6...12.8

100 s: (12.4...13.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 250.0 2nd speed

Rack travel in mm : 7.0...7.2 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 600 Speed Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 126.0...128.0 Del.quantity 1000 : (124.0...130.0)

: 3.00 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 16.0

Testing:

1st rack travel in: 11.50

Speed rpm : 1145...1160 2nd rack travel in: 4.00

rpm : 1245...1275 Speed

G28

control-rod travel of 6.5 mm

LOW IDLE 1 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 6.0 Testing: Speed : 100 rpm Minimum rack trave: 7.50 Speed rpm: 250
Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00
Speed rpm: 385...425 : 450 Speed rom Maximum rack trave: 1.00 TORQUE CONTROL Dimension a mm : 0.40 Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 12.50...12.60 nd speed rpm : 600 Rack travel in m: 13.40...13.50 2nd speed rpm : 860 3rd speed Rack travel in m: 13.10...13.30 rpm : 910 4th speed Rack travel in m: 12.60...12.90 FUEL DELIVERY CHARACTERISTICS 1st version : 1100 Speed rpm Speed rpm . 1700 Del.quantity cm3/: 127.0...130.0 1000 s: (124.5...132.5) rpm : 500 Speed Del.quantity cm3/: 126.5...130.5 1000 s: (124.5...132.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.50 rpm : 1145...1160 Speed STARTING FUEL DELIVERY : 100 Speed rpm

Note remarks

Test sheet : MAN 11,1p25

Edition : 23.09.88 : 8.6.88 Replaces : TSO-4113 Test oil

Combination no. : 0 400 846 510

Injection pump

Pump designation : PES6A950410LS2542 EP type number : 0 410 896 936

Governor

Governor design. : RQ250/1100AB1137-9L

Governer no. : 0 420 200 091

Customer-spec. information Customer · MAN

: D2566MUH/200 Engine

: 147.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60 : (1.45...1.65)

Rack travel in mm : 9.00...12.00

402

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 10.0...10.3

100 s: (9.8...10.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 250.0 2nd speed

Rack travel in mm: 7.4...7.6 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.0)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 600 Speed

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Speed Del.quantity 1000 : 100.0...103.0

: (98.0...105.0) : 3.50

Spread cm3

: (6.00) 1000

RATED SPEED

1st version

Setting point:

Speed : 600 rom

Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.00 Speed rpm : 1145...1160

2nd rack travel in: 4.00

rpm : 1225...1255 Speed

LOW IDLE 1 Setting point w/out bumper spring rpm : 250 Speed Rack travel in mm: 6.4 Testing: Speed rpm : 100 Minimum rack trave: 7.90 rpm : 250 Speed Rack travel in mm : 6.30...6.50 Rack travel in mm : 2.00 rpm : 370...410 Speed TORQUE CONTROL Dimension a mm : 0.65 Torque control curve - 1st version 1st speed rpm : 1100
Rack travel in m: 11.00...11.10
2nd speed rpm : 600
Rack travel in m: 12.40...12.50
3rd speed rpm : 870
Rack travel in m: 12.00...12.30 Rack travel in m: 12.00...12.20 4th speed rpm : 955 Rack travel in m: 11.20...11.50 FUEL DELIVERY CHARACTERISTICS 1st version **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.00 Speed rpm : 1145...1160 STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 121.5...131.5 1000 s: (118.5...134.5) Rack travel in mm : 13.00...13.60 Remarks: : MAN-NR. 2-7415 Set idle stop at 250 min -1 to a

control-rod travel of 6.5 mm

Note remarks

: MAN 11,4 j Test sheet : 23.09.88 Edition : 11.12.87 Replaces : ISO-4113 Test oil

Combination no. : 0 400 846 528

Injection pump

Pump designation : PES6A95D41OLS2639-1

: 0 410 896 920 EP type number

Governor

: RQV250...1100AB1177-Governor design.

: 0 420 212 174 Governer no.

Customer-spec. information : MAN Customer

Engine : D2566MF/220

1st version kW : 162.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values __

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 1.50...1.60 Prestroke mm

: (1.45...1.55)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasina

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.30...14.40

Del.guantity cm3/: 13.0...13.2

100 s: (12.8...13.4)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 250.0 Rack travel in mm : 7.6...7.8 Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.8) cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 200 1st speed : 0.70...0.90 travel mm

2nd speed rpm : 800

: 5.20...5.50 : 1200 : 7.90...8.10 travel mm

3rd speed rpm

travel mm

4th speed rpm : 1400

: 9.70...10.20 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1260 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 130.0...132.0 Del.quantity

1000 : (128.0...134.0)

: 3.50 Spread cm3

1000 : (6.00)

H04

RATED SPEED

1st version Control lever

position degrees: 44...52

Testina:

1st rack travel in: 11.80

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1275...1305

4th rack travel in: 1400 Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 12...20

Testing:

: 100 Speed rom Minimum rack trave: 9.00 : 250 rom

Rack travel in mm : 7.40...7.60

CONSTANT REGULATION

rpm : 320...440 Speed

TORQUE CONTROL

Dimension a mm : 1.45

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 12.80...12.90

rpm : 500 2nd speed

Rack travel in m: 14.30...14.40

3rd speed rpm : 875

Rack travel in m: 13.90...14.10

4th speed rpm : 965

Rack travel in m: 13.10...13.40

START CUT-OUT

Speed 1/min: 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

: 1100 Speed rpm

Del.quantity cm3/: 122.0...126.0 1000 s: (119.5...128.5) Speed rpm : 500 Del.quantity cm3/: 130.0...133.0 1000 s: (127.5...135.5)

BREAKAWAY

1st version

1mm rack travel less than

H₀5

full load rack tr: 11.80 peed rpm : 1140...1150

Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 105.0...115.0

1000 s: (102.0...118.0)

Rack travel in mm : 15.20...15.40

Remarks:

: MAN-NR. 2-7521

Set idle stop at 250 min -1 to a

control-rod travel of 7.5 mm

Note remarks

Test sheet : DAF 6,2 p 1 Edition : 15.12.88

Replaces : 30.5.88 Test oil : ISO-4113

Combination no. : 0 400 846 537

Injection pump

Pump designation : PES6A95D32ORS2693Z

EP type number : 0 410 896 913

Governor

Governor design. : RQ300/1300AB1204R

Governer no. : 0 420 201 640

Customer-spec. information Customer : DAF

costoller . DAF

Engine : DNS 620

1st version kW : 150.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10 : (1.95...2.15)

Rack travel in mm : 7.50...10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50

& maximum rack tra: 21.00 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 8.7...8.9

100 s: (8.5...9.1)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5 Del.quantity cm3/ : 0.7...1.1

100 s: (0.4...1.3)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 Speed rpm : 820

Rack travel in mm : 16.80...18.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 850 Aneroid pressure h: 700

Del.guantity : 87.0...89.0

1000 : (85.0...91.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 820

Rack travel in mm : 17.6

H06

Testina: 1st rack travel in: 10.70 Speed rpm : 1345...1360 2nd rack travel in: 4.00 rpm : 1425...1455 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm : 6.4 Testing: : 100 Speed rpm Minimum rack trave: 7.30 : 300 rpm Rack travel in mm : 6.30...6.50 Rack travel in mm : 2.00 : 525...565 Speed rpm TORQUE CONTROL
Dimension a mm : 0.55 Torque control curve - 1st version 1st speed rpm : 1290 Rack travel in m: 0.00...0.10 2nd speed rpm : 850 Rack travel in m: 1.40...1.60 3rd speed rpm : 965 Rack travel in m: 1.00...1.30 4th speed rpm : 1060 Rack travel in m: 0.20...0.60 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 Pressure hPa : 700 Rack travel mm : 12.20...12.30 Measurement 1/min: 600 Speed 1st pressure hPa : -Rack travel in m: 11.20...11.40 2nd pressure hPa : 290
Rack travel in m: 12.00...12.10
3rd pressure hPa : 250
Rack travel in m: 11.50...11.70 START CUT-OUT

1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

Speed rpm : 1345...1360

full load rack tr: 10.70

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...145.0 1000 s: (127.0...148.0) Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm3 : 3.50

oread cm3 : 3.50 1000 s: (5.50)

Remarks:

When adjusting the governor, observe service information on microcard W-400/008.

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : RAB 9,7 b 1 Test sheet : 11.11.88 Edition Replaces : 13.5.87 Test oil : ISO-4113 Combination no. : 0 400 846 543 Injection pump Pump designation : PES6A95D42OLS2595 EP type number : 0 410 896 930 Governor Governor design. : RQ200/1100AB1210R : 0 420 201 643 Governer no. Customer-spec. information Customer : RABA : D2156MT6U Engine 1st version kW : 188.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening | pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

: 2.00...2.10

: (1.95...2.05)

per values ____

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

BEGINNING OF DELIVERY

Prestroke mm

: 0-60-120-180-240-300 Phasing : 0.50 (0.75) Tolerance + - 0 Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 12.60...12.70 Del.quantity cm3/: 12.6...12.8 100 s: (12.4...13.0) cm3 : 0.3Spread 100 s: (0.6) rpm : 200.02nd speed Rack travel in mm: 7.3...7.5 Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.7) Spread cm3 : 0.3100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -2 Speed rpm: 600 Rack travel in mm: 19.20...20.60 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1100 Speed Aneroid pressure h: 700 : 126.5...128.5 : (124.5...130.5) : 3.00 Del.quantity 1000 Spread cm3 1000 : (6.00) RATED SPEED 1st version Setting point: Speed rpm : 600 Rack travel in mm : 19.9 Testing: 1st rack travel in: 11.60 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 rpm : 1190...1220 Speed

: 1-5-3-6-2-4

Firing order

80H

LOW IDLE 1

Setting point w/out bumper spring

rpm : 200 Rack travel in mm: 6.4

Testing:

Speed rpm : 100 Minimum rack trave: 7.60 Speed rpm : 200

Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 320...360 Speed rpm : 450

Maximum rack trave: 1.00

TORQUE CONTROL

Dimension a mm : 1.20

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 12.60...12.70 ad speed rpm : 600 Rack travel in m: 13.80...14.00 ad speed rpm : 865

2nd speed

3rd speed

Rack travel in m: 13.40...13.70 h speed rpm : 985

4th speed rpm

Rack travel in m: 13.00...13.20

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : 700

Rack travel mm : 13.80...13.90

Measurement

1/min: 500 Speed

Rack travel in m: 11.10...11.20

2nd pressure hPa : 340

Rack travel in m: 12.80...12.90

3rd pressure hPa : 250

Rack travel in m: 11.20...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 700

Del.quantity cm3/: 135.0...138.0

1000 s: (133.0...140.0)

rpm : 500 Speed

Del.quantity cm3/: 82.5...84.5 1000 s: (80.5...86.5)

BREAKAWAY

H₀9

1st version 1mm rack travel less than

full load rack tr: 11.60 rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 177.0...187.0

1000 s: (174.0...190.0)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

Set idle stop at 200 min -1 to a control-rod travel of 6.4 mm

APPLICATION Omnibus

Note remarks

: IHC 7,6 m Test sheet Edition : 20.12.88

Replaces Test oil

: ISO-4113

: 0 400 846 566 Combination no.

Injection pump

Pump designation : PES6A95D32ORS2770 EP type number : 0 410 896 905

Governor

: RQV350...1300AB1242R Governor design.

Governer no. : 0 420 213 110

Customer-spec. information Customer : NAVISTAR

: DT 466 Engine

: 138.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

assembly : 1 688 901 110

Opening

: 250...253 pressure, bar

Orifice plate

diameter mm : 0,5

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85 : (2.70...2.90)

Rack travel in mm : 10.50

: 1-5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 11.70...11.80

Del.quantity cm3/: 8.3...8.5

100 s: (8.1...8.7)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 5.1...5.3
Del.quantity cm3/ : 1.7...2.1
100 s: (1.4...2.3)
Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1350 1st speed

: 8.30...8.50 travel mm rpm : 1460

2nd speed travel mm

: 9.10...9.50

rpm : 550 3rd speed

: 3.10...3.70 travel mm

rpm : 350 4th speed

travel mm : 1.30...1.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1510 Speed

Rack travel in mm : 6.60...9.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del.quantity : 83.5...85.5 1000 : (81.5...87.5)

cm3 : 3.50 1000 : (6.00) Spread

RATED SPEED

1st version Control lever

position degrees: 44...52

Testing:

1st rack travel in: 10.70 Speed rpm : 1345...1375

2nd rack travel in: 4.00

Speed rpm : 1470...1480 4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 7...15

Testina:

rpm : 100 Speed Minimum rack trave: 9.00

Speed rpm : 350
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00

Speed rpm : 445...505

CONSTANT REGULATION

rpm : 360...460 Speed

START CUT-OUT

Speed 1/min: 270 (280)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70

rpm : 1345...1375 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 150.0...170.0 1000 s: (145.0...175.0) Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.10...5.30 Del.quantity cm3/ : 17.0...21.0 1000 s: (14.5...23.5)

Spread

cm3 : 3.50 1000 s: (5.50)

Remarks:

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of

delivery of cylinder 1

H11

Note remarks

: MB 6,0 d 2 Test sheet : 27.10.88 Edition

Replaces

Test oil : ISO-4113

: 0 400 846 567 Combination no.

Injection pump

Pump designation : PES6A90D410RS2710 EP type number : 0 410 896 082

Governor

: RQV300...1400AB1065-Governor design.

16L

: 0 420 212 214 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM 366

: 82.0 1st version kW Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.25...2.35 Prestroke mm

: (2,20,..2,40)

H12

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 10.10...10.20

Del.quantity cm3/: 5.3...5.4

100 s: (5.1...5.6)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 300.0 Rack travel in mm : 8.9...9.1 Del.guantity cm3/: 0.9...1.3

100 s: (0.7...1.5)

cm3 : 0.2Spread 100 s: (0.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.80...1.30 travel mm

: 500 2nd speed rom

: 2.30...2.80 travel mm

: 750 3rd speed rpm

: 4.10...4.30 travel mm

: 1500 4th speed rpm

travel mm 8.50...8.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1400 Speed

: 53.0...54.0 Del.quantity 1000 : (51.0...56.0)

: 3.00 Spread cm3

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 57...65

Testing:

1st rack travel in: 9.10

rpm : 1440...1450 Speed 2nd rack travel in: 4.00 rpm : 1530...1560 Speed

4th rack travel in: 1700

rom : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 18...26

Testing:

: 100 Speed rpm Minimum rack trave: 10.30 rpm : 300

Rack travel in mm : 8.90...9.10

CONSTANT REGULATION

Speed rpm : 500...700

TORQUE CONTROL

Dimension a mm :? Torque control curve - 1st version

rpm : 1400 1st speed Rack travel in m: 10.10...10.20

rpm : 500 2nd speed

Rack travel in m: 11.10...11.20

3rd speed rpm : 900

Rack travel in m: 10.60...10.90

4th speed rpm : 1100

Rack travel in m: 10.20...10.50

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/: 39.0...41.0
1000 s: (36.5...43.5)

Speed rpm : 900 Del.quantity cm3/ : 47.0...50.0 1000 s: (44.5...52.5)

Speed rpm : 1400

Del.quantity cm3/: 61.0...64.0 1000 s: (59.0...66.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.10

rpm : 1440...1450 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 78.0...88.0

1000 s: (75.0...91.0) Rack travel in mm : 17.00...17.40

Remarks:

Set shutoff stop to contact at 3.0...3.5 mm control-rod travel.

H13

Note remarks

Test sheet : KHD 9,6 s 1 Edition : 09.01.89

Replaces

Test oil : ISO-4113

Combination no. : 0 400 846 568

Injection pump

Pump designation : PES6A95D41DRS2416

EP type number : 0 410 896 961

Governor

: RQV300...1150AB1211-Governor design.

: 0 420 212 217 Governer no.

Customer-spec. information Customer : KHD

Engine : F6L413FR-ALLG.

1st version kW : 103.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening 1

: 172...175 pressure, bar

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 10.10...10.20

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm : 6.4...6.6 Del.quantity cm3/ : 2.2...2.8 100 s: (1.9...3.0)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.20...1.30 travel mm : 325 2nd speed rpm

travel mm : 1.70...1.80

3rd speed rpm : 375

: 2.50...2.60 travel mm

: 1265 4th speed rpm

: 9.40...9.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV, AT FULL LOAD STOP

1st version

rpm : 1150 Speed

: 98.0...100.0 Del.quantity

1000 : (96.0...102.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

H14

1st version Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.10

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

Speed rpm : 1245...1275

4th rack travel in: 1370

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 17...25

Testing:

Speed rpm : 200 Minimum rack trave: 10.30 rpm : 300 Speed

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

rpm : 310...450 Speed

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

rpm : 1150 1st speed

Rack travel in m: 10.10...10.20

rpm : 650 2nd speed

Rack travel in m: 10.40...10.50

3rd speed rpm : 1005

Rack travel in m: 10.20...10.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/ : 94.0...97.0 1000 s: (91.5...99.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

H15

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

Remarks:

Note remarks

: MB 6,0 a 6 Test sheet : 22.12.88 Edition

Replaces

: ISO-4113 Test oil

: 0 400 846 571 Combination no.

Injection pump

Pump designation : PES6A90D410RS2667 : 0 410 896 080 EP type number

Governor

: RQV300...1200AB1065-Governor design.

17L

: 0 420 212 219 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

: OM 366 Engine

: 92.0 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 015 Test Lines

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35

: (2.20...2.40)

H16

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm : 1200 1st speed

Rack travel in mm : 11.10...11.20

Del.guantity cm3/: 5.8...5.9

100 s: (5.6...6.1)

cm3 : 0.3Spread

100 s: (0.5)

rpm : 300.02nd speed Rack travel in mm: 8.9...9.1 Del.quantity cm3/: 0.9...1.3

100 s: (0.7...1.5) cm3 : 0.2

Spread 100 s: (0.4)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.80...1.30 travel mm

rpm : 500 2nd speed

travel mm : 2.30...2.80

3rd speed rpm : 750

: 4.30...4.70 travel mm

: 1260 4th speed rpm

: 8.40...8.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1260

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

: 58.0...59.0 Del.quantity

: (56.0...61.0) : 3.00 1000 Spread cm3

: (5.00) 1000

RATED SPEED

1st version Control lever position degrees: 56...64 Testing: 1st rack travel in: 10.10 rpm : 1240...1250 Speed 2nd rack travel in: 4.00 Speed rpm : 1330...1360 4th rack travel in: 1500 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 16...24 Testing: rpm : 100 Speed Minimum rack trave: 10.30 rpm : 300 Rack travel in mm : 8.90...9.10 CONSTANT REGULATION rpm : 540...680 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 11.10...11.20 rpm : 600 2nd speed Rack travel in m: 12.30...12.40 3rd speed rpm : 900 Rack travel in m: 11.80...12.00 4th speed rpm : 1000 Rack travel in m: 11.30...11.60 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 Del.quantity cm3/ : 54.0...56.0 1000 s: (51.5...58.5) rpm : 900 Speed Del.guantity cm3/: 56.0...59.0 1000 s: (53.5...61.5) **BREAKAWAY** 1st version

1mm rack travel less than

full load rack tr: 10.10

Speed

H17

rpm : 1240...1250

STARTING FUEL DELIVERY

Remarks:

Set shutoff stop to contact at 3.0...3.5 mm control-rod travel.

Note remarks

Test sheet : MWM 3,1 b 2 : 12.01.89 : 11.7.88 Edition

Replaces : ISO-4113 Test oil

: 0 400 863 008 Combination no.

Injection pump

Pump designation : PES3A90D320/3RS2658

· 0 410 893 004 EP type number

Governor

: RSV325...1500A2C505-Governor design.

3R

: 0 420 233 229 Governer no.

Customer-spec. information Customer

: D226B-3 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.95...3.05 Prestroke mm

: (2.90...3.10)

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 3 Phasing : 0-120-240

Tolerance + - 0 : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...0.00 & maximum rack tra: 21.00 Difference ° CS : 3.50...4.50

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 8.9...9.0

100 s: (8.7...9.2)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 325.0 Rack travel in mm : 9.7...9.9

Del.quantity cm3/: 4.6...5.2

100 s: (4.4...5.4) cm3 : 0.2

Spread

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 89.5...90.5 Del.quantity 1000 : (87.5...92.5)

cm3 : 3.00 Spread

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 10.20

Speed rpm : 1140...1150

2nd rack travel in: 4.00 Speed rpm : 1180...1210 3rd rack travel in: 4.00

Speed rpm : 1210...1240 4th rack travel in: 1375 Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 13...21

Setting point w/out bumper spring

rpm : 325 Rack travel in mm: 9.3 rpm : 325 Speed

Rack travel in mm : 9.70...9.90 Rack travel in mm : 2.00

rpm : 480...540 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 11.20...11.30

2nd speed rpm : 500

Rack travel in m: 11.20...11.40

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.20

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 16.80...21.00

Remarks:

Note remarks

: KHD 3,0 d Test sheet : 28.11.88 Edition Replaces : 19.8.88 : ISO-4113 Test oil

Combination no. : 0 400 863 013

Injection pump

Pump designation : PES3A90D410/3RS2740

EP type number : 0 410 893 006

Governor

: RSV325...1150A0C2219 Governor design.

Governer no.

: 0 420 232 466

Customer-spec. information Customer : KHD

Engine : F3L913G

: 36.0 : 2300 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.50...2.60 Prestroke mm

: (2.45...2.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 2

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm:650

Rack travel in mm : 9.20...9.30

Del.guantity cm3/: 5.2...5.3

100 s: (5.0...5.5)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 375.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.1...1.7

100 s: (0.9...1.9)

cm3 : 0.2Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 650 Speed

: 52.0...53.0 Del.quantity : (50.0...55.0) : 3.00 1000

Spread cm3

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 8.10

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1120...1150 Speed

3rd rack travel in: 4.00

rpm : 1135...1165 Speed 4th rack travel in: 1300 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring : 375 rpm Rack travel in mm : 5.5 Testing: : 100 Speed rpm Minimum rack trave: 19.50 Speed rpm : 375
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00 Speed rpm : 470...530 TORQUE CONTROL Torque control curve - 1st version rpm : 650 1st speed Rack travel in m: 9.20...9.30 rpm : 350 2nd speed Rack travel in m: 9.30...9.60 3rd speed rpm : 1050 Rack travel in m: 9.10...9.30 FUEL DELIVERY CHARACTERISTICS 1st version : 350 Speed rpm Del.quantity cm3/: 45.0...47.0 1000 s: (42.5...49.5) Speed rpm : 1050 Del.quantity cm3/ : 63.5...65.5 1000 s: (61.0...68.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.10 rpm : 1090...1100 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 57.0...67.0 1000 s: (54.0...70.0) Rack travel in mm : 10.70...10.90 Remarks:

Note remarks

: KHD 1 g 38 : 18.10.88 Test sheet Edition

Replaces Test oil

: ISO-4113

Combination no. : 0 400 863 015

Injection bumb

Pump designation : PES3A85D41D/3RS2642

EP type number

: 0 410 883 989

Governor

: RSV325...1200A2C2102 Governor design.

-3L

: 0 420 232 508 Governer no.

Customer-spec. information : KHD

Customer

: F3L913 Engine

: 44.0 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60

: (2.45...2.65)

Rack travel in mm : 9.00...12.00 Firing order : 1- 3- 2

Phasing : 0-120-240

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 10.30...10.40

Del.quantity cm3/: 6.8...6.9

100 s: (6.6...7.1)

cm3 : 0.3Spread

100 s: (0.5)

2nd speed rpm : 325.0 Rack travel in mm : 7.9...8.1

Del.quantity cm3/: 0.9...1.6 100 s: (0.7...1.8)

Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

: 68.5...69.5 Del quantity 1000 : (66.5...71.5)

: 3.00 Spread cm3

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 9.30

rpm : 1240...1250 Speed

2nd rack travel in: 4.00

Speed rpm : 1275...1305 3rd rack travel in: 4.00

rpm : 1295...1325 Speed 4th rack travel in: 1460 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm : 7.5 Testina: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 325 Rack travel in mm : 7.90...8.10 Rack travel in mm : 2.00 Speed rpm : 430...490 TORQUE CONTROL Dimension a mm : 0.40 Torque control curve - 1st version rpm : 1200 1st speed Rack travel in m: 10.30...10.40 rpm : 500 2nd speed Rack travel in m: 10.70...10.90 4th speed rpm : 875 Rack travel in m: 10.40...10.60 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/ : 59.0...61.0 1000 s: (56.5...63.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.30 rpm : 1240...1250 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 140.0...150.0 1000 s: (137.0...153.0) Rack travel in mm: 19.50...21.00 Remarks: : FENDT APPLICATION Tractor (tractor engines)

Note remarks

: KHD 4,1 d 4 Test sheet Edition : 30.09.88

Replaces : 12.9.86 : ISO-4113 Test oil

: 0 400 864 065 Combination no.

Injection pump

Pump designation : PES4A850410/3RS2638

EP type number : 0 410 884 950

Governor

: RSV325...1400A8C540-Governor design.

: 0 420 232 457 Governer no.

Customer-spec. information Customer : KHD

Engine : BF4L913

: 35.0 : 2800 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.50...2.60 Prestroke mm

: (2.45...2.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2

: 0-90-180-270 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 7.0...7.1

100 s: (6.8...7.3)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 325.0 Rack travel in mm : 9.0...9.2 Del.quantity cm3/: 1.0...1.6

100 s: (0.8...1.8)

cm3 : 0.2Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

: 70.0...71.0 Del.quantity 1000 : (68.0...73.0)

cm3 : 3.00 Spread

1000 : (5.00)

RATED SPEED

1st version Control lever

position degrees: 56...64

Testing:

1st rack travel in: 10.60

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

: 1325...1355 Speed rom

3rd rack travel in: 4.00

rpm : 1385...1415 Speed 4th rack travel in: 1560 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm : 7.7 Testing: Speed : 100 rpm Minimum rack trave: 19.50 : 325 Speed rpm Rack travel in mm : 8.10...8.30 Rack travel in mm : 2.00 rpm : 640...700 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 1250 1st speed Rack travel in m: 11.60...11.70 rpm : 500 2nd speed Rack travel in m: 12.70...12.80 rpm : 1000 4th speed Rack travel in m: 12.20...12.40 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 800 Del.quantity cm3/: 66.0...68.0 1000 s: (63.5...70.5) rpm : 1000 Speed Del.quantity cm3/: 66.0...68.0 1000 s: (63.5...70.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.60 rpm : 1290...1300 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm : 19.50...21.00

: ATLAS-COPCO

Remarks:

Note remarks

: MWM 4,1 f Test sheet Edition : 04.11.88

Replaces

Test oil : ISO-4113

: 0 400 864 073 Combination no.

Injection pump

Pump designation : PES4A90D320/3RS2743

EP type number : 0 410 894 034

Governor

: RSV325...1075A0C2182 Governor design.

-5R

Governer no. : 0 420 233 226

Customer-spec. information Customer : MWM

: TD226-B4 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.95...3.05 Prestroke mm

: (2.90...3.10) Rack travel in mm : 9.00...12.00

: 1-3-4-2 Firing order

H26

: 0-90-180-270 Phasing

Tolerance + - 0 : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...0.00 & maximum rack tra: 21.00 Difference ° CS : 3.50...4.50

BASIC SETTING

1st speed rpm: 1045

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 8.7...8.8

100 s: (8.5...9.0)

Spread cm3 : 0.3

100 s: (0.5)

rpm : 325.0 2nd speed

Rack travel in mm: 6.9...7.1 Del.quantity cm3/ : 1.0...1.4

100 s: (0.8...1.6)

cm3 : 0.2Spread

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1045 Aneroid pressure h: 700

: 87.5...88.5 Del.quantity 1000 : (85.5...90.5)

: 3.00 Spread cm3

: (5.00) 1000

RATED SPEED

1st version

Control lever

position degrees: 37...45

Testing:

1st rack travel in: 10.10

rpm : 1085...1095 Speed 2nd rack travel in: 4.00 Speed rpm : 1115...1145 3rd rack travel in: 4.00 Speed rpm : 1125...1155 4th rack travel in: 1280 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 15...23 Setting point w/out bumper spring rpm : 325 Rack travel in mm : 5.5 Testing: rpm : 100 Speed Minimum rack trave: 19.50 rpm : 325 Speed Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 Speed rpm : 470...530 TORQUE CONTROL Torque control curve - 1st version rpm : 1045 1st speed Rack travel in m: 11.10...11.20 2nd speed rpm : 500 Rack travel in m: 12.20...12.30 3rd speed rpm : 845 Rack travel in m: 11.60...11.80 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed man hPa : 700 Pressure : 12.20...12.30 Rack travel mm Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 10.30...10.40 2nd pressure hPa : 240 Rack travel in m: 11.80...11.90 3rd pressure hPa : 150 Rack travel in m: 11.30...11.50 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 240 rpm : 500 Del.quantity cm3/: 86.0...89.0 1000 s: (83.5...91.5)

Aneroid pressure h: Speed rpm : 500
Del.quantity cm3/ : 64.0...65.0
1000 s: (62.0...67.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1085...1095

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...140.0
1000 s: (127.0...143.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Remarks:

H27

Note remarks

Test sheet : KHD 6,1 a 9 Edition : 20.05.88

Replaces

Test oil : ISO-4113

Combination no. : 0 400 866 081

Injection pump

Pump designation : PES6A85D41D/3RS2415

EP type number : 0 410 886 915

Governor

Governor design. : RS325/1325A0C691DL

: 0 420 220 006 Governer no.

Customer-spec. information Customer : KHD

: BF6L913 Engine

1st version kW : 110.0 : 2650 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

: 1.90...2.00

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

H28

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1325

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 8.6...8.7

100 s: (8.4...8.9)

cm3 : 0.3Spread

100 s: (0.4)

rpm : 325.0 2nd speed

Rack travel in mm: 8.2...8.4

Del.quantity cm3/: 1.3...1.9

100 s: (1.1...2.1) cm3 : 0.2Spread

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1325

Aneroid pressure h: 700

: 86.5...87.5 Del.quantity

1000 : (84.5...89.5)

: 3.00 cm3 Spread

1000 : (4.50)

RATED SPEED

1st version Control lever

position degrees: 64...72

Testina:

1st rack travel in: 11.00 Speed rpm: 1355...1365 2nd rack travel in: 4.00

rpm : 1450...1480 Speed

4th rack travel in: 1600

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: ?

Setting point w/out bumper spring

rpm : 325 Rack travel in mm : 6.5

Testing:

Speed rpm : 100 Minimum rack trave: 16.00 Speed rpm : 500
Rack travel in mm : 3.40...4.00
Rack travel in mm : 2.00

rpm : 1350...140 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1325 1st speed

Rack travel in m: 12.00...12.10

rpm : 500 2nd speed

Rack travel in m: 12.00...12.20

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rom hPa : 700 Pressure

Rack travel mm : 12.00...12.10

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.70...10.80 2nd pressure hPa : 373 Rack travel in m: 11.70...11.80

3rd pressure hPa : 266

Rack travel in m: 11.20...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 800 Del.quantity cm3/ : 77.5...79.5

1000 s: (75.0...82.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 56.0...58.0 1000 s: (54.0...60.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

Speed rpm : 1355...1365

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 103.0...113.0 1000 s: (100.0...116.0)

Rack travel in mm : 16.30...16.70

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

The stop position of the control rod must be easily reached with the stop lever

Note remarks

Test sheet : KHD 6,1 a10 Edition : 09.01.89

Replaces

: ISO-4113 Test oil

: 0 400 866 082 Combination no.

Injection pump

Pump designation: PES6A85D410/3RS2415

EP type number : 0 410 886 915

Governor

Governor design. : RS325/1325A0C709DL Governor no. : 0 420 220 009

Customer-spec. information Customer : KHD

: BF6L913 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1325

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 8.6...8.7

100 s: (8.4...8.9)

cm3 : 0.3Spread

100 s: (0.4)

rpm : 325.0 2nd speed Rack travel in mm: 8.2...8.4 Del.quantity cm3/: 1.3...1.9

100 s: (1.1...2.1)

Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1325 Speed Aneroid pressure h: 700

Del.quantity : 86.5...87.5

1000 : (84.5...89.5) : 3.00

Spread cm3 1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 64...72

Testing:

1st rack travel in: 11.00

rpm : 1355...1365 Speed

2nd rack travel in: 4.00

rpm : 1450...1480 Speed

4th rack travel in: 1600

rom : 0.30...1.40Speed

LOW IDLE 1

Control Lever

position degrees: ?

Setting point w/out bumper spring

rpm : 325 Rack travel in mm: 6.5

Speed rpm : 100 Minimum rack trave: 16.00 rpm : 325

Rack travel in mm : 6.40...6.60 Rack travel in mm : 2.00

rpm : 1350...140 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1325 1st speed

Rack travel in m: 12.00...12.10

2nd speed rpm : 500

Rack travel in m: 12.00...12.20

Aneroid/Altitude Compensator Test

1st version

rpm : 500

hPa : 700 Pressure

Rack travel mm : 12.00...12.10

Measurement

1/min : 500

1st pressure hPa : -

Rack travel in m: 10.70...10.80
2nd pressure hPa : 373
Rack travel in m: 11.70...11.80
3rd pressure hPa : 266

Rack travel in m: 11.20...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 800 Del.quantity cm3/ : 77.5...79.5 1000 s: (75.0...82.0)

Aneroid pressure h: -

rpm : 500

Del.quantity cm3/: 56.0...58.0

1000 s: (54.0...60.0)

BREAKAWAY

1st version

1mm rack travel less than

Testing:

Setting

Speed

Speed

Speed

103

full load rack tr: 11.00

rpm : 1355...1365 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 103.0...113.0 1000 s: (100.0...116.0) Rack travel in mm: 16.30...16.70

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

The stop position of the control rod must be easily reached with the stop lever

Note remarks

: FOR 5,9 f 4 Test sheet Edition : 15.05.87

Replaces

Test oil : ISO-4113

Combination no. : 0 400 866 103

Injection pump

Pump designation : PES6A90D210RS2629

: 0 410 896 075 EP type number

Governor

: RSV350...1300A0c2143 Governor design.

: 0 420 232 376 Governer no.

Customer-spec. information : FORD/GR Customer

Engine : DOVER 363

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80

: (2.65...2.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-

: 0-60-120-180-240-300 Phasina

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 11.70...11.80

Del.guantity cm3/ : 5.8...5.9

100 s: (5.6...6.1)

cm3 : 0.3Spread

100 s: (0.4)

rpm : 350.0 2nd speed Rack travel in mm : 7.2...7.4

Del.quantity cm3/: 0.7...1.3

100 s: (0.5...1.5)

Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1250 : 58.5...59.5 Del.quantity 1000 : (56.5...61.5) cm3 : 3.00

Spread

1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 65...73

Testing:

1st rack travel in: 10.70

rpm : 1370...1380 Speed

2nd rack travel in: 4.00

rpm : 1470...1500 Speed

3rd rack travel in: 4.00

rpm : 1495...1520 Speed

4th rack travel in: 1680

rpm : 0.30...1.40Speed

LOW IDLE 1 Control Lever

position degrees: 34...42

Setting point w/out bumper spring

Speed rpm: 350 Rack travel in mm : 6.8

Testing:

rpm : 100 Speed Minimum rack trave: 19.50

Speed rpm: 350
Rack travel in mm: 7.20...7.40
Rack travel in mm: 2.00
Speed rpm: 580...640
Speed rpm: 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 11.70...11.80

3rd speed rpm : 700 Rack travel in m: 11.90...12.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70

rpm : 1370...1380 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 76.0...90.0 1000 s: (73.0...93.0) Rack travel in mm : 19.00...21.00

Remarks:

At start of delivery, locating pin must latch into slit in pointer.

Note remarks

Test sheet : FOR 5,9 f 4 Edition : 27.03.87

Replaces

Test oil : ISO-4113

Combination no. : 0 400 866 109

Injection pump

Pump designation : PES6A90D210RS2629

EP type number

: 0 410 896 075

Governor

: RSV350...1300A0c2139 Governor design.

: 0 420 232 374 Governer no.

Customer-spec. information : FORD/GB Customer

: 380 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.70...2.80 Prestroke mm

: (2.65...2.85) Rack travel in mm : 9.00...12.00

: 1-5-3-6-Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 7.2...7.3

100 s: (7.0...7.5)

Spread cm3 : 0.3

100 s: (0.4)

rpm : 350.0 2nd speed Rack travel in mm : 6.4...6.5

Del.quantity cm3/: 0.9...1.3

100 s: (0.7...1.5)

Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1250 / : 72.0...73.0 1000 : (70.0...75.0) Del.quantity

cm3 : 3.00 Spread 1000 : (4.50)

RATED SPEED

1st version Control Lever

position degrees: 64...72

Testing:

1st rack travel in: 11.90 Speed rpm : 1365...1375

2nd rack travel in: 4.00

Speed rpm : 1480...1510 3rd rack travel in: 4.00

rpm : 1505...1535 Speed

4th rack travel in: 1670

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 30...38

Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 6.0

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350

Rack travel in mm: 6.40...6.60 Rack travel in mm: 2.00 Speed rpm: 515...575

Speed rpm : 650 Maximum rack trave: 1.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.90

Speed rpm : 1365...1375

STARTING FUEL DELIVERY

Remarks:

At start of delivery, locating pin must latch into slit in pointer.

Note remarks

Test sheet : KHD 6,1 r Edition : 28.11.88 Replaces : 19.8.88 Test oil : ISO-4113

Combination no. : 0 400 866 125

Injection pump

Pump designation : PES6A85D410/3RS2761

EP type number : 0 410 886 895

Governor

Governor design. : RSV325...1150A8C674-

11

Governer no. : 0 420 232 518

Customer—spec. information Customer : KHD

Engine : BF6L913

1st version kW : 112.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60

: (2.45...2.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 8.4...8.5

100 s: (8.2...8.7)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 325.0 Rack travel in mm : 7.5...7.7 Del.quantity cm3/ : 0.8...1.4

100 s: (0.6...1.6) Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150 Aneroid pressure h: 700

Del.quantity : 84.5...85.5

1000 : (82.5...87.5)

Spread cm3 : 3.00

1000 : (5.00)

RATED SPEED

1st version Control lever

position degrees: 48...56

Testina:

1st rack travel in: 11.10

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1225...1255

3rd rack travel in: 4.00 Speed rpm : 1290...1320 4th rack travel in: 1455 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 13...21 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm : 7.1 Testing: Speed rpm: 100
Minimum rack trave: 19.50
Speed rpm: 325
Rack travel in mm: 7.50...7.70
Rack travel in mm: 2.00 Speed rpm : 600...660 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 12.10...12.20 2nd speed rpm : 750 Rack travel in m: 12.60...12.70 3rd speed rpm : 855 Rack travel in m: 12.30...12.50 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 Speed hPa : -Pressure : 11.50...11.60 Rack travel mm Measurement Speed 1/min: 500 1st pressure hPa : 350 Rack travel in m: 11.90...12.00 3rd pressure hPa : 700 Rack travel in m: 12.60...12.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700

Speed rpm : 750 Del.quantity cm3/ : 87.0...89.0 1000 s: (84.5...91.5) Aneroid pressure h: rpm_ : 500 Speed Del.quantity cm3/: 64.5...65.5 1000 s: (62.5...67.5) 109

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.10 Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 110.0...120.0 1000 s: (107.0...123.0) Rack travel in mm : 17.00...17.40

Remarks:

Note remarks

Test sheet : KHD 6,1 r 1 Edition : 28.11.88

Replaces

Test oil : ISO-4113

: 0 400 866 126 Combination no.

Injection pump

Pump designation : PES6A85D410/3RS2761

: 0 410 886 895 EP type number

Governor

: RSV325...1150A8C673-Governor design.

: 0 420 232 519 Governer no.

Customer-spec. information

: KHD Customer

: BF6L913 Engine

1st version kW : 112.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.50...2.60 Prestroke mm

: (2.45,..2.65)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 8.4...8.5

100 s: (8.2...8.7)

cm3 : 0.3Spread

100 s: (0.5)

2nd speed rpm : 325.0 Rack travel in mm : 7.5...7.7 Del.quantity cm3/ : 0.7...1.3 100 s: (0.5...1.5)

Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Dearee: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

: 84.5...85.5 : (82.5...87.5) : 3.00 Del.quantity 1000

Spread cm3

: (5.00) 1000

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 11.10 Speed rpm : 1190...1200

2nd rack travel in: 4.00

rpm : 1225...1255 Speed

3rd rack travel in: 4.00

rpm : 1290...1320 Speed 4th rack travel in: 1455 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm : 7.1 Testing: rpm : 100 Speed Minimum rack trave: 19.50 Speed rpm : 325
Rack travel in mm : 7.00...7.20
Rack travel in mm : 2.00 rpm : 600...660 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 1150 1st speed Rack travel in m: 12.10...12.20 2nd speed rpm : 750 Rack travel in m: 12.60...12.70 3rd speed rpm : 855 Rack travel in m: 12.30...12.50 FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm : 750 Del.quantity cm3/ : 87.0...89.0 1000 s: (84.5...91.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.10 Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 110.0...120.0 1000 s: (107.0...123.0) Rack travel in mm : 17.00...17.40

Remarks:

Note remarks

Test sheet : KHD 6,1 r 2 : 28.11.88 Edition

Replaces

: ISO-4113 Test oil

: 0 400 866 127 Combination no.

Injection pump

Pump designation : PES6A85D410/3RS2761

EP type number : 0 410 886 895

Governor

: RSV325...1150A8C707-Governor design.

: 0 420 232 517 Governer no.

Customer-spec. information

Customer : KHD

Engine : BF6L913

1st version kW : 112.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.50...2.60 Prestroke mm

: (2.45...2.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 8.4...8.5

100 s: (8.2...8.7)

cm3 : 0.3Spread

100 s: (0.5)

2nd speed rpm : 325.0 Rack travel in mm : 7.5...7.7 Del.quantity cm3/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm3 : 0.2100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150 Aneroid pressure h: 700

: 84.5...85.5 Del.quantity : (82.5...87.5) : 3.00

1000

cm3 Spread

: (5.00) 1000

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testina:

1st rack travel in: 11.10

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

rpm : 1230...1260 Speed

3rd rack travel in: 4.00 Speed rpm: 1290...1320 4th rack travel in: 1455 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm : 7.1 Testing: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 325
Rack travel in mm : 7.50...7.70
Rack travel in mm : 2.00 Speed rpm : 600...660 TORQUE CONTROL : 0.50 Dimension a mm Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 12.10...12.20 2nd speed rpm : 500
Rack travel in m: 12.60...12.70
3rd speed rpm : 855
Rack travel in m: 12.30...12.50 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : -Rack travel mm : 11.50...11.60 Measurement 1/min: 500 Speed 1st pressure hPa : 350 Rack travel in m: 11.90...12.00 3rd pressure hPa : 700 Rack travel in m: 12.60...12.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Speed rpm : 750 Del.quantity cm3/: 87.0...89.0 1000 s: (84.5...91.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.10

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 110.0...120.0 1000 s: (107.0...123.0) Rack travel in mm : 17.00...17.40

Remarks:

J13

Speed

Aneroid pressure h: -

rpm_ : 500

1000 s: (62.5...67.5)

Del.quantity cm3/: 64.5...65.5

Note remarks

: CUM 8,3 f : 20.12.88 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 400 866 128

Injection pump

Pump designation : PES6A1000320/3RS2763

EP type number : 0 410 806 006

Governor

: RSV410...950A0C2190-Governor design.

26R

: 0 420 233 224 Governer no.

Customer-spec. information Customer : C.D.C.

Engine : 6 CT

1st version kW : 138.0 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90

: (2.75...3.00)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 950 1st speed

Rack travel in mm : 9.60...9.70

Del.guantity cm3/: 8.4...8.6

100 s: (8.2...8.8)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 410.0 2nd speed

Rack travel in mm : 5.0...5.2 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 950 Speed

: 84.5...86.5 : (82.5...88.5) Del.quantity 1000

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 8.60 Speed rpm : 1010...1020 2nd rack travel in: 4.00

rpm : 1050...1080 Speed

4th rack travel in: 1150 rpm : 0.30...1.40Speed

LOW IDLE 1 Control lever

position degrees: 24...32

Setting point w/out bumper spring

rpm : 410 Rack travel in mm : 4.6

Testing:

: 100 Speed rom Minimum rack trave: 19.00 rpm : 410

Rack travel in mm : 5.00...5.20 Rack travel in mm : 2.00

rpm : 455...515 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 950

Rack travel in m: 9.60...9.70

2nd speed rpm : 650

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/: 99.0...103.0

1000 s: (97.0...105.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.60

rpm : 1010...1020 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 150.0...170.0 1000 s: (145.0...175.0) Rack travel in mm: 20.00...21.00

LOW IDLE

Speed rpm : 410

Rack travel in mm : 5.00...5.20 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5)

Spread

cm3 : 3.50 1000 s: (5.50)

Remarks:

Adjustment without torque-control spring retainer with 0,5 mm less control—rod travel. Increase in full—load delivery with torque—control Adjust stop lever to 0.5...1.0 mm

before stop.

Start-of-delivery mark at 10° cam rotation angle after start of delivery,

cylinder 1

Note remarks

: CUM 8,3 f 1 : 20.12.88 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 400 866 129

Injection pump

Pump designation : PES6A100D320/3RS2763

EP type number : 0 410 806 006

Governor

Governor design. : RSV400...1050A0c2190

-27R

: 0 420 233 225 Governer no.

Customer-spec. information Customer : C.D.C.

Engine : 6CT 8.3

: 111.0 1st version kW : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Rated speed

Firing order

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 10.50 Firing order : 1-5- 3- 6- 2- 4

Phasing

: 0-60-120-180-240-300

Tolerance + - 0

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1100

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 8.7...8.9

100 s: (8.5...9.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0 Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.1...1.5 100 s: (0.9...1.8)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 87.0...89.0 Del.quantity 1000 : (85.0...91.0)

: 3.50 cm3

Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 9.20 rpm : 1145...1155 Speed 2nd rack travel in: 4.00 rpm : 1205...1235 Speed 3rd rack travel in: 4.00 rpm : 1210...1240 Speed 4th rack travel in: 1300

LOW IDLE 1 Control lever

position degrees: 25...33 Setting point w/out bumper spring

rpm : 0.30...1.40

rpm : 400 Rack travel in mm : 4.9

Speed

Testing: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.30...5.50

Rack travel in mm : 2.00 : 470...530 Speed rpm

TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100
Rack travel in m: 10.20...10.30
2nd speed rpm : 750
Rack travel in m: 11.30...11.50

FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm : 750

Del.quantity cm3/: 99.0...103.0 1000 s: (97.0...105.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.20

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 150.0...170.0 1000 s: (145.0...175.0) Rack travel in mm: 19.00...21.00

LOW IDLE

: 400 rpm

Rack travel in mm : 5.30...5.50

J17

Del.quantity cm3/ : 11.5...15.5 1000 s: (9.0...18.0)

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

Note remarks

Test sheet : MWM 6,2 g : 27.10.88 Edition Replaces : 5.8.88 Test oil : ISO-4113

Combination no. : 0 400 866 130

Injection pump

Pump designation : PES6A90D320/3RS2766

EP type number : 0 410 896 087

Governor

: RSV325...1075A0C2182 Governor design.

-6R

: 0 420 233 227 Governer no.

Customer-spec. information Customer : MWM

Engine : TD226B-6

: 106.0 1st version kW : 2150 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.95...3.05

: (2.90...3.10)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : −1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00 Difference ° CS : 3.50...4.50

BASIC SETTING

1st speed rpm: 1075

Rack travel in mm : 10.90...11.00

Del.quantity cm3/: 8.1...8.2

100 s: (7.9...8.4)

Spread cm3 : 0.3

100 s: (0.5)

rpm : 325.02nd speed

Rack travel in mm : 6.9...7.1 Del.quantity cm3/: 1.0...1.6 100 s: (0.8...1.8)

cm3 : 0.2

Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rp̃m : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1075 Speed Aneroid pressure h: 700

Del.quantity : 81.3...84.5)

: 3.00 cm3 Spread 1000 : (5.00)

RATED SPEED

1st version

Control lever position degrees: 39...47 Testing: 1st rack travel in: 9.90 rpm : 1115...1125 Speed 2nd rack travel in: 4.00 rpm : 1140...1170 Speed 3rd rack travel in: 4.00 rpm : 1165...1195 Speed 4th rack travel in: 1330 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 6.5 Testing: : 100 Speed rpm Minimum rack trave: 19.50 rpm : 325 Rack travel in mm : 6.90...7.10 Rack travel in mm : 2.00 Speed : 495...555 rom TORQUE CONTROL Torque control curve - 1st version rpm : 1075 1st speed Rack travel in m: 10.90...11.00 rpm : 500 2nd speed Rack travel in m: 12.00...12.10 3rd speed rpm : 890 Rack travel in m: 11.40...11.60 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : 700 Pressure Rack travel mm : 12.00...12.10 Measurement 1/min: 500 Speed

1st pressure hPa : -Rack travel in m: 10.30...10.40 2nd pressure hPa : 250 Rack travel in m: 11.40...11.50 3rd pressure hPa : 150 Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 700 rpm : 500 Del.quantity cm3/: 86.0...88.0 1000 s: (83.5...90.5) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 62.0...63.0 1000 s: (60.0...65.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.90 rpm : 1115...1125 Speed

STARTING FUEL DELIVERY

Speed rpm Del.quantity cm3/: 130.0...140.0 1000 s: (127.0...143.0) Rack travel in mm : 19.50...21.00

Remarks:

Note remarks

Test sheet : CUM 8,3 g : 20.12.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 400 866 131

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

: RSV425...900A4C2213-Governor design.

2R

: 0 420 233 230 Governer no.

Cust. part no. : 3914869

Customer-spec. information Customer : C.D.C.

: 6 CT 8.3 Engine

1st version kW : 154.0 : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm

: (2.75...2.95) Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm: 830

Rack travel in mm : 13.40...13.50

Del.quantity cm3/: 13.5...13.7

100 s: (13.3...13.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 425.0 2nd speed Rack travel in mm : 5.5...5.7 Del.quantity cm3/: 1.2...1.6

100 s: (0.9...1.8)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

Speed rpm : 830

: 135.0...137.0 Del.quantity 1000 : (133.0...139.0)

> : 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...48

Testing: 1st rack travel in: 12.40 Speed rpm : 925...935 2nd rack travel in: 4.00 Speed rpm : 960...990 3rd rack travel in: 4.00 4th rack travel in: 1030 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring rpm : 425 Rack travel in mm: 5.0 Testina: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 425 Speed Rack travel in mm : 5.40...5.60 Rack travel in mm : 2.00 Speed rpm : 435...495 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.40 rpm : 925...935 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE rpm : 425 Speed Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 12.0...16.0 1000 s: (9.5...18.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark at 10° cam rotation angle after start of delivery,

cylinder 1

Note remarks

: CUM 8,3 a15 Test sheet : 20.12.88 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 400 866 134

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

: RSV400...1100A0c2190 Governor design.

-31R

: 0 420 233 233 Governer no.

Customer-spec. information : C.D.C. Customer

: 6 CT 8.3 Engine

: 156.6 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 12.2...12.4

100 s: (12.0...12.6)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 5.6...5.8

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 122.5...124.5 Del.quantity

1000 : (120.5...126.5)

cm3 : 3.50 1000 : (6.00) Spread

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

122

1st rack travel in: 11.30 rpm : 1145...1155 Speed 2nd rack travel in: 4.00 rpm : 1240...1270 Speed 4th rack travel in: 1300 Speed rpm : 0.30...1.40LOW IDLE 1 Control lever position degrees: 28...36 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.2 Testing: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00 Speed rpm : 485...545 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.30 Speed rpm : 1145...1155 STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE : 400 Speed rpm Rack travel in mm : 5.60...5.80 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark at 10° cam

rotation angle after start of delivery,

cylinder 1

Note remarks

Test sheet : CUM 8,3 a16 Edition : 20.12.88

Replaces

: ISO-4113 Test oil

Combination no. : 0 400 866 135

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV500...1050A0C2190

-30R

: 0 420 233 234 Governer no.

Customer-spec. information Customer : C.D.C.

: 6-CT-I 8.3 ltr Engine

1st version kW : 123.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - □ : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 500.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

Del.quantity : 90.3...70... 1000 : (94.5...100.5)

: 3.50 Spread cm3

: (6.00) 1000

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 9.70 Speed rpm : 1095...1105

2nd rack travel in: 4.00

rpm : 1180...1210 Speed 4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control Lever

position degrees: 32...40

Setting point w/out bumper spring Speed rpm : 500 Rack travel in mm : 5.1

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed : 500 rpm

Rack travel in mm : 5.50...5.70 Rack travel in mm : 2.00

: 570...630 Speed rom

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 10.70...10.80
2nd speed rpm : 750
Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/: 116.0...120.0 1000 s: (114.0...122.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70

rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

LOW IDLE

rpm : 500 Speed

Rack travel in mm : 5.50...5.70

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

Spread

cm3 : 3.50 1000 s: (5.50)

Remarks:

Adjustment without torque-control spring retainer with 1 mm less
Adjust stop lever to 0.5...1.0 mm
before stop. ivery with torque-control
Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Note remarks

: KHD 6,1 r 3 Test sheet Edition : 09.01.89

Replaces Test oil

: ISO-4113

Combination no.

: 0 400 866 137

Injection pump

Pump designation : PES6A85D410/3RS2761

EP type number : 0 410 886 895

Governor

: RSV325...1400A2C2205 Governor design.

-1L

: 0 420 232 520 Governer no.

Customer-spec. information Customer : KHD

: BF6L913 Engine

: 118.0 1st version kW : 2800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60

: (2.45...2.65)

Firing order : 1-5-3-6-2-4

Rack travel in mm : 9.00...12.00

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 12,30...12.40

Del.guantity cm3/: 8.7...8.8

100 s: (8.5...9.0)

cm3 : 0.3Spread

100 s: (0.5)

2nd speed rpm : 325.0
Rack travel in mm : 7.3...7.5
Del.quantity cm3/: 0.8...1.4
100 s: (0.6...1.6)
Spread cm3 : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 700

Del.quantity : 87.3...00.5)
1000 : (85.5...90.5)
1000 : (85.5...90.5)

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 11.30 Speed rpm : 1290...1300 2nd rack travel in: 4.00

rpm : 1345...1375 Speed

3rd rack travel in: 4.00

rpm : 1395...1425 Speed

4th rack travel in: 1560

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 13...21 Setting point w/out bumper spring

Speed rpm : 325 Rack travel in mm : 6.9

Testing:

rpm : 100 Speed Minimum rack trave: 19.50

Speed rpm : 325
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00

rpm : 605...665 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 12.30...12.40

2nd speed rpm : 500

Rack travel in m: 12.80...12.90

3rd speed rpm : 940

Rack travel in m: 12.50...12.70

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 hPa : -Pressure

Rack travel mm : 11.40...11.50

Measurement

1/min: 500 Speed

1st pressure hPa : 300 Rack travel in m: 11.60...11.70 3rd pressure hPa : 700

Rack travel in m: 12.80...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 Speed rpm : 750 Del.quantity cm3/: 88.5...90.5 1000 s: (86.0...93.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 62.5...63.5 1000 s: (60.5...65.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30 Speed rpm : 1290...1300

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 110.0...120.0

1000 s: (107.0...123.0)

Rack travel in mm : 17.00...17.40

Remarks:

APPLICATION

Wheel loader

Excavator

Note remarks

: CUM 8,3 g 1 Test sheet : 20.12.88 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 400 866 138

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV425...750A4C2213-

3R

: 0 420 233 235 Governer no.

Customer-spec, information Customer : C.D.C.

: 6CT- 8.3 L Engine

: 135.0 1st version kW : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 14.2...14.4

100 s: (14.0...14.6)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 425.0 2nd speed

Rack travel in mm : 6.0...6.2

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 750

: 142.5...144.5 Del.quantity : (140.5...146.5) : 3.50 1000

Spread cm3 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 37...45

Testing:

1st rack travel in: 13.00 Speed rpm : 795...805 2nd rack travel in: 4.00 Speed rpm : 825...855 3rd rack travel in: 4.00 rpm : 830...860 Speed LOW IDLE 1 Control Lever position degrees: 19...27 Setting point w/out bumper spring Speed rpm : 425 Rack travel in mm : 5.6 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 425
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00 Speed rpm : 440...500 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.00 rpm : 795...805 Speed STARTING FUEL DELIVERY LOW IDLE rpm : 425 Speed Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5) Spread cm3 : 3.50 1000 s: (5.50) Remarks: Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1 Adjust stop lever to 0.5...1.0 mm before stop. APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 f 2 : 20.12.88 Edition Replaces : ISO-4113 Test oil : 0 400 866 139 Combination no. Injection pump Pump designation : PES6A100D320/3RS2763 EP type number : 0 410 806 006 Governor Governor design. : RSV400...1250A0c2190 -32R : 0 420 233 236 Governer no. Customer-spec. information Customer : CDC Engine : 6 CT 8.3 ltr 1st version kW : 114.0 : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly **Opening** : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014

: 6.00X2.00X600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 1250 1st speed Rack travel in mm : 9.20...9.30 Del.quantity cm3/: 8.4...8.6 100 s: (8.2...8.8) Spread cm3 : 0.3100 s: (0.6) rpm : 400.0 2nd speed Rack travel in mm : 5.1...5.3 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1250 : 84.0...86.0 Del.quantity 1000 : (82.0...88.0) cm3 : 3.50 Spread 1000 : (6.00)RATED SPEED 1st version Control lever position degrees: 53...61 Testina:

K02

Outside diameter x Wall thickness

per values ____

Test pressure, bar: 27...29

BEGINNING OF DELIVERY

x Length mm

1st rack travel in: 8.20 rpm : 1310...1320 Speed 2nd rack travel in: 4.00 rpm : 1345...1375 Speed 3rd rack travel in: 4.00 rpm : 1350...1380 Speed 4th rack travel in: 1450 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 28...36 Setting point w/out bumper spring : 400 rpm Rack travel in mm: 4.7 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Rack travel in mm : 5.10...5.30 Rack travel in mm : 2.00 Speed : 480...540 rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 9.20...9.30 2nd speed rpm : 800 Rack travel in m: 9.60...9.80 FUEL DELIVERY CHARACTERISTICS 1st version Speed : 800 rpm Del.quantity cm3/: 80.5...84.5 1000 s: (78.5...86.5) **BREAKAWAY** 1st version 1mm rack travel less than

full load rack tr: 8.20

Speed rpm : 1310...1320

STARTING FUEL DELIVERY

Speed rpm_ : 100

Del.quantity cm3/: 145.0...165.0

1000 s: (140.0...170.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.10...5.30

K03

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control Adjust stop lever to 0.5...1.0 mm before stop.
Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

Test sheet : VAL 3,3 a 1 Edition : 28.11.88 Replaces : 1.86 Test oil : ISO-4113

Combination no. : 0 400 873 032

Injection pump

Pump designation : PES3A95D32DRS2655 EP type number : 0 410 893 999

Governor

Governor design. : RSV325...1150A2C2178

-1R

: 0 420 233 177 Governer no.

Customer-spec. information Customer : VALMET

: 311 DS6 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.50...2.60 Prestroke mm

: (2.45...2.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 3

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00 Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed rpm: 1130

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 6.5...6.7

Del.quantity cm3/ : 2.2...2.8

100 s: (1.9...3.0)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1130 Speed

: 88.5...90.5 Del.quantity

1000 : (86.5...92.5) cm3 : 3.50

Spread 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 9.40 rom : 1170...1180 Speed 2nd rack travel in: 4.00 rpm : 1230...1260 Speed 3rd rack travel in: 4.00 rpm : 1240...1270 Speed 4th rack travel in: 1405 Speed rom : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 6.1 Testina: rpm : 100 Speed Minimum rack trave: 19.50 rpm : 325 Rack travel in mm : 6.50...6.70 Rack travel in mm : 2.00 Speed : 450...510 mar TORQUE CONTROL Torque control curve - 1st version rpm : 1130 1st speed Rack travel in m: 10.40...10.50 2nd speed rpm : 500 Rack travel in m: 11.80...11.90 3rd speed rpm : 915 Rack travel in m: 11.20...11.40 FUEL DELIVERY CHARACTERISTICS 1st version : 500 Speed rpm Del.quantity cm3/: 94.5...96.5 1000 s: (92.0...99.0) 1000 s: (7.) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.40 rpm : 1170...1180 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 190.0...200.0 1000 s: (187.0...203.0) Rack travel in mm : 19.50...21.00 LOW IDLE

K05

Speed rpm : 325
Rack travel in mm : 6.50...6.70
Del.quantity cm3/ : 22.0...28.0
1000 s: (19.5...30.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

APPLICATION
Tractor (tractor engines)

Note remarks

: VAL 2,7 a Test sheet Edition : 09.12.88 : 12.9.86 Replaces Test oil : ISO-4113

Combination no. : 0 400 873 037

Injection pump

Pump designation : PES3A95D32ORS2711 EP type number : 0 410 893 998

Governor

Governor design. : RSV325...1175A0C2178

-3R

: 0 420 233 206 Governer no.

Customer-spec. information : VALMET Customer

: 309 DS4 Engine

: 45.0 1st version kW : 2350 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm

: 2.50...2.60 : (2.45...2.65)

K06

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 3

: 0-120-240 Phasing .

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00 Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed rpm: 1210

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 7.5...7.7

100 s: (7.3...7.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 325.0 2nd speed Rack travel in mm : 6.1...6.3 Del.quantity cm3/: 1.7...2.5

100 s: (1.4...2.7) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1210

: 75.5...77.5 Del.guantity 1000 : (73.5...79.5)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 41...49 Testing: 1st rack travel in: 9.20 rpm : 1250...1260 2nd rack travel in: 4.00 rpm : 1325...1355 Speed 3rd rack travel in: 4.00 Speed rpm : 1330...1360 4th rack travel in: 1500 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 5.7 Testing: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 325 Rack travel in mm : 6.10...6.30 Rack travel in mm : 2.00 : 435...495 Speed rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1210 Rack travel in m: 10.20...10.30 and speed rpm : 500 Rack travel in m: 11.30...11.40 2nd speed 4th speed rpm : 985 Rack travel in m: 10.80...11.00 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 500 Del.quantity cm3/ : 66.5...69.5 1000 s: (64.0...72.0) 1000 s: (7.) **BREAKAWAY** 1st version 1mm rack travel less than

Del.quantity cm3/: 155.0...165.0 1000 s: (152.0...168.0) Rack travel in mm : 19.50...21.00 LOW IDLE Speed rpm : 325 Rack travel in mm : 6.10...6.30 Del.quantity cm3/: 17.0...25.0

Del.quantity cm3/: 17.0...25.0 1000 s: (14.5...27.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks: APPLICATION : Tractor (tractor engines)

K07

Speed

Speed

full load rack tr: 9.20

STARTING FUEL DELIVERY

rpm : 1250...1260

rpm : 100

Note remarks

Test sheet : LIE 5,6 a Edition : 09.01.89 : 28.8.87 Replaces Test oil : ISO-4113

: 0 400 874 238 Combination no.

Injection pump

Pump designation : PES4A95D410RS2685 : 0 410 894 996 EP type number

Governor

: RSV400...1000A1C2187 Governor design.

: 0 420 232 387 Governer no.

Customer-spec. information Customer : LIEBHERR

Engine : D904 NA

1st version kW : 70.0 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 40...45

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.70...2.80 Prestroke mm

: (2.65...2.85)

Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2

: 0-90-180-270 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00

Difference ° CS : 4.00...5.00

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 10.20...10.30

Del.guantity cm3/: 8.6...8.8

100 s: (8.4...9.0)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 400.0 Rack travel in mm : 6.3...6.5 Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.8)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

: 86.0...88.0 Del.quantity

1000 : (84.0...90.0) cm3 : 3.50 1000 : (6.00) Spread

RATED SPEED

1st version Control lever

position degrees: 43...51

Testing: 1st rack travel in: 9.20 rpm : 1040...1050 Speed 2nd rack travel in: 4.00 rpm : 1050...1080 Speed 3rd rack travel in: 4.00 rpm : 1085...1115 Speed 4th rack travel in: 1230 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 15...23 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.9 Testina: rpm : 100 Speed Minimum rack trave: 19.50 Speed rpm: 400 Rack travel in mm: 6.30...6.50 Rack travel in mm : 2.00 Speed rpm : 515...575 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 10.20...10.30 2nd speed rpm : 500 Rack travel in m: 10.20...10.40 FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm Del.quantity cm3/: 80.5...83.5 1000 s: (78.0...86.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.20 rpm : 1040...1050 Speed INTERMEDIATE RATED SPEED Rack travel in mm: 4.00 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

rpm : 400 Speed Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 10.0...16.0 1000 s: (7.5...18.5) cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Note remarks

: VAL 4,4 b : 28.11.88 Test sheet Edition

Replaces Test oil

: ISO-4113

Combination no.

: 0 400 874 241

Injection pump

Pump designation : PES4A95D32DRS2654

EP type number

: 0 410 894 997

Governor

: RSV325...1200A2C2218 Governor design.

Governer no. : 0 420 232 463

Customer-spec. information Customer : VALMET

Engine : 411 DSJ

: 90.0 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.50...2.60 : (2.45...2.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-2-4-3

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00

Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 11.10...11.20

Del.guantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 325.02nd speed

Rack travel in mm: 6.3...6.5 Del.quantity cm3/: 1.8...2.4

100 s: (1.5...2.6)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 700

Del.quantity : 98.0...102.0)

: 3.50

cm3 Spread

: (6.00) 1000

RATED SPEED

1st version

Control lever position degrees: 45...53 Testing: 1st rack travel in: 10.10 Speed rpm : 1240...1250 2nd rack travel in: 4.00 Speed rpm : 1295...1325 3rd rack travel in: 4.00 Speed rpm: 1305...1335 4th rack travel in: 1470 Speed rpm : 0.30...1.40Speed LOW IDLE 1 Control Lever position degrees: 18...26 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 5.9 Testing: Speed rpm : 100 Minimum rack trave: 19.50 rpm : 325 Rack travel in mm : 6.30...6.50 Rack travel in mm : 2.00 Speed : 430...490 LDW TORQUE CONTROL Torque control curve - 1st version st speed rpm : 1200
Rack travel in m: 11.10...11.20 1st speed nd speed rpm : 500 Rack travel in m: 12.40...12.50 2nd speed 4th speed rpm : 910 Rack travel in m: 11.70...11.90 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 700 Speed rom Pressure Rack travel mm : 12.40...12.50 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.40...9.50 2nd pressure hPa : 420 Rack travel in m: 11.70...11.80 3rd pressure hPa : 160 Rack travel in m: 10.00...10.20 FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 700 rpm : 800 Del.quantity cm3/: 112.5...115.5 1000 s: (110.0...118.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 59.0...62.0 1000 s: (57.0...64.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.10 rpm : 1240...1250 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 190.0...200.0 1000 s: (187.0...203.0) Rack travel in mm : 19.50...21.00

LOW IDLE

Remarks:

APPLICATION
Tractor (tractor engines)

Note remarks

Test sheet : MB 4,0 c 1 : 18.10.88 Edition : 2.9.88 Replaces : ISO-4113 Test oil

Combination no. : 0 400 874 244

Injection pump

Pump designation : PES4A90D410RS2666-2

: 0 410 894 033 EP type number

Governor

: RSV350...1200A2C1139 Governor design.

-3L

: 0 420 232 472 Governer no.

Customer-spec. information

: DAIMLER-BENZ Customer

: OM364 Engine

: 57.0 : 2400 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2,25...2,35 Prestroke mm

: (2.20...2.40)

Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 5.4...5.5

100 s: (5.2...5.7)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 350.0 Rack travel in mm : 8.1...8.9 Del.quantity cm3/ : 1.0...1.2

100 s: (0.8...1.4) cm3 : 0.2Spread

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

: 54.0...55.0 Del.quantity : (52.0...57.0) : 3.00 1000

Spread cm3

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 54...62

Testing:

1st rack travel in: 9.50

rpm : 1240...1245 Speed

2nd rack travel in: 4.00

rpm : 1298...1311 Speed

3rd rack travel in: 4.00

Speed rpm : 1331...1361 4th rack travel in: 1450 Speed rpm : 0.30...1.40 5th rack travel in: 1240...1250 rpm : 9.50 Speed LOW IDLE 1 Control lever position degrees: -3 Setting point w/out bumper spring rpm : 350° Rack travel in mm: 8.60 Testina: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 350 Rack travel in mm : 8.50...8.70 Rack travel in mm : 2.00 : 520...580 Speed rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 10.50...10.60 rpm : 800 2nd speed Rack travel in m: 12.00...12.10 d speed rpm : 950 Rack travel in m: 11.70...11.90 3rd speed : 1050 4th speed rpm Rack travel in m: 11.00...11.30 FUEL DELIVERY CHARACTERISTICS 1st version : 800 Speed rpm Del.quantity cm3/: 55.0...57.0 1000 s: (52.5...59.5) rpm : 1050 Speed Del.quantity cm3/: 55.0...57.0 1000 s: (52.5...59.5) STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 80.0...90.0 1000 s: (77.0...93.0) Rack travel in mm: 16.10...16.50 LOW IDLE rpm : 350 Speed Rack travel in mm : 8.10...8.90 Del.quantity cm3/: 10.0...12.0 1000 s: (8.0...14.0) Spread cm3 : 2.501000 s: (4.50)

Remarks:

Note remarks

Test sheet : MB 5,7 o 5 Edition : 09.12.88

Replaces : -

Test oil : ISO-4113

Combination no. : 0 400 876 195

Injection pump

Pump designation : PES6A90D410RS2293Z

EP type number : 0 410 896 037

Governor

Governor design. : RSV750...1250A1C618-

1L

Governer no. : 0 420 232 407

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM352A

1st version kW : 107.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25

: (2.10...2.30)

és.

Phasing : 0-60-120-180-240-300

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1230

Rack travel in mm : 11.20...11.30

Del.quantity cm3/ : 7.4...7.5

100 s: (7.2...7.7)

Spread cm3 : 0.3

100 s: (0.4)

2nd speed rpm : 750.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 1.0...1.6

100 s: (0.8...1.8)

Spread cm3 : 0.2 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1230

Del.quantity : 74.5...75.5 1000 : (72.5...77.5)

Spread cm3 : 3.00

1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 61...69

Testing:

1st rack travel in: 10.20

Speed rpm : 1260...1270

2nd rack travel in: 4.00

Speed rpm : 1295...1315

4th rack travel in: 1350

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 29...37
Setting point w/out bumper spring
Speed rpm : 750
Rack travel in mm : 5.6
Speed rpm : 750
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 760...790

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0)

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Remarks:

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : KHD 1 g 12 : 04.11.88 Test sheet Edition : 7.3.88 Replaces : ISO-4113 Test oil Combination no. : 0 400 876 320 Injection pump Pump designation : PES6A85D41ORS2591 : 0 410 886 903 EP type number Governor Governor design. : RSV325...1150A8C2020 : 0 420 232 345 Governer no. Customer-spec. information : KHD Customer : BF6L913 Engine : 117.0 1st version kW : 2300 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.00 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Lenath mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.50...2.60

Rack travel in mm : 9.00...12.00

: (2.45...2.65)

: 0-60-120-180-240-300 Phasing Tolerance + - 0 : 0.50 (0.75) BASIC SETTING rpm: 1200 1st speed Rack travel in mm : 12.30...12.40 Del.quantity cm3/: 8.4...8.5 100 s: (8.2...8.7) cm3 : 0.3Spread 100 s: (0.4) 2nd speed rpm : 325.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/: 0.8...1.4 100 s: (0.6...1.6) Spread cm3 : 0.2 100 s: (0.4) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 6.00FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1200 Aneroid pressure h: 700 Del.quantity : 84.0...87.0) : 3.00 Spread cm3 1000 : (4.50) RATED SPEED 1st version Control Lever position degrees: 55...63 Testing: 1st rack travel in: 11.30 rpm : 1240...1250 Speed 2nd rack travel in: 4.00 rpm : 1295...1325 Speed 3rd rack travel in: 4.00

: 1-5-3-6-2-4

Firing order

K16

Prestroke mm

rpm : 1350...1380 Speed 4th rack travel in: 1515 Speed rpm : 0.30...1.40LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring rpm Rack travel in mm: 7.5 Testing: : 100 Speed rpm Minimum rack trave: 19.50 : 325 rpm Rack travel in mm : 7.90...8.10 Rack travel in mm : 2.00 Speed : 640...700 rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 12.30...12.40 rpm : 500 2nd speed Rack travel in m: 13.10...13.20 3rd speed rpm : 925 Rack travel in m: 12.80...13.00 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom Pressure hPa : 700 Rack travel mm : 13.10...13,20 Measurement 1/min : 500Speed 1st pressure hPa : -Rack travel in m: 12.30...12.40 2nd pressure hPa : 145 Rack travel in m: 12.60...12.70 3rd pressure hPa : 80 Rack travel in m: 12.20...12.40 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 : 650 Speed rpm Del.quantity cm3/: 79.0...81.0

1000 s: (76.5...83.5)

Aneroid pressure h: 700

Speed rpm : 1000 Del.quantity cm3/ : 83.0...85.0 1000 s: (80.5...87.5)

Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 67.0...68.0 1000 s: (65.0...70.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.30 : 1240...1250 Speed rpm STARTING FUEL DELIVERY Remarks: : DX 7.10 **APPLICATION** Tractor (tractor engines)

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 L/min.

Note remarks

Test sheet : DEE 7,6 w Edition : 30.09.88 Replaces : 15.6.88 Test oil : ISO-4113

Combination no. : 0 400 876 345

Injection pump

Pump designation : PES6A100D410RS2754

EP type number : 0 410 806 002

Governor

: RSV400...1100A2C2229 Governor design.

: 0 420 232 492 Governer no.

Customer-spec. information Customer : JOHN DEERE

: 6076 TF Engine

1st version kW : 142.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

K18

Prestroke mm : 2.95...3.05 : (2.90...3.10)
Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 12.0...12.2

100 s: (11.8...12.4)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 5.0...5.2

Del.quantity cm3/: 1.9...2.3

100 s: (1.6...2.5) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 120.0...122.0 Del.quantity 1000 : (118.0...124.0)

: 3.50

cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 11.00 rpm : 1145...1155 Speed 2nd rack travel in: 4.00

rpm : 1205...1215 Speed

4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 16...24

Setting point w/out bumper spring rpm : 400

Rack travel in mm: 4.6

Testina:

: 100 Speed rpm Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.00...5.20 Rack travel in mm : 2.00

: 550...610 Speed rom

TORQUE CONTROL

Torque control curve - 1st version rpm : 1100 1st speed

Rack travel in m: 12.00...12.10

2nd speed rpm : 700

Rack travel in m: 13.90...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 700 Speed

Del.quantity cm3/: 151.0...154.0 1000 s: (148.5...156.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 130.0...150.0 1000 s: (125.0...155.0)

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.00...5.20 Del.quantity cm3/: 19.0...23.0

1000 s: (16.5...25.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: JOHN DEERE # RE32036

Adjustment without torque-control spring retainer with 1 mm less Start-of-delivery mark = 13,5° after start of delivery cyl. 1. rque-control spring retainer.

Note remarks

Test sheet : DEE 7,6 h11 : 30.09.88 Replaces : 15.6.88 Test oil

Combination no. : 0 400 876 347

Pump designation : PES6A100D41DRS2676

: 9 410 230 023

Governor

-5L

Governer no. : 0 420 232 495

Customer-spec. information

Engine

: 130.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test nozzle holder

: 1 688 901 017

Opening |

Orifice plate

diameter mm : 0,6

x Wall thickness

Insp. values in parentheses Set equal delivery quant.

: ISO-4113

Injection pump

EP type number

Governor design.

: RSV600...1100A2C2161

Customer : JOHN DEERE

: 6466AZ-02

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

assembly

: 207...210 pressure, bar

: 1 680 750 008 Test lines

Outside diameter

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Edition

Prestroke mm : 2.45...2.55 : (2.40...2.60)

Rack travel in mm : 10.50

: 1-5- 3- 6- 2- 4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 $\pm 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.10...10.20

Del.guantity cm3/: 11.1...11.3

100 s: (10.9...11.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 600.0 2nd speed Rack travel in mm: 4.2...4.4 Del.quantity cm3/: 1.1...1.5 100 s: (0.8...1.7) Spread cm3: 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 700

Del.quantity : 177.0...15.0)
1000 : (109.0...115.0)
2000 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 44...52

Testing: 1st rack travel in: 9.10 rpm : 1145...1155 Speed 2nd rack travel in: 4.00 Speed rpm : 1195...1205 4th rack travel in: 1250 Speed rpm : 0.30...1.40 LOW IDLE 1 Control Lever position degrees: 25...33 Setting point w/out bumper spring rpm : 600 Rack travel in mm: 3.8 Testing: rpm : 100 Speed Minimum rack trave: 19.00 speed rpm : 600
Rack travel in mm : 4.20...4.40
Rack travel in mm : 2.00
Speed : 670...730 Speed rpm TORQUE CONTROL Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 10.10...10.20 2nd speed rpm : 950 Rack travel in m: 10.70...10.90 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 95 Pressure : 9.00...9.10 Rack travel mm Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 8.20...8.40 2nd pressure hPa : 145 Rack travel in m: 9.80...10.20 3rd pressure hPa : 700 Rack travel in m: 10.70...10.90 FUEL DELIVERY CHARACTERISTICS

Del.quantity cm3/: 68.0...72.0 1000 s: (66.0...74.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.10 Speed rpm : 1145...1155 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 190.0...210.0 1000 s: (185.0...215.0) LOW IDLE Speed rpm : 600 Rack travel in mm : 4.20...4.40 Del.quantity cm3/: 11.0...15.0 1000 s: (8.5...17.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks:

: JOHN DEERE # RE32396

Setting without torque-control spring retainer with 1 mm control-rod travel less. Raising of full-load delivery with torque-control spring retainer to 10.1 mm control-rod travel.

Start-of-delivery mark = 15.5° after start of delivery cyl. 1.

K21

Speed

1st version

Aneroid pressure h: 700

Aneroid pressure h: -

rpm

Speed rpm : 950 Del.quantity cm3/ : 119.0...122.0 1000 s: (116.5...124.5)

: 500

Note remarks

: DEE 7,6 x : 20.12.88 Test sheet Edition Replaces : 15.6.88

Test oil : ISO-4113

Combination no. : 0 400 876 348

Injection pump

Pump designation : PES6A100D410RS2754

EP type number : 0 410 806 002

Governor

: RSV400...1100A2C2204 Governor design.

-2L

: 9 420 234 177 Governer no.

Customer-spec. information : JOHN DEERE Customer

Engine : 6466 TT

: 124.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 130...150

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.95...3.05 Prestroke mm : (2.90...3.10)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - 0

Time to cyl. no.

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 11.00...11.10

Del.guantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 3.1...3.5

100 s: (2.8...3.7)

: 0.3 Spread cm3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 105.0...107.0 Del.quantity 1000 : (103.0...109.0)

cm3 2 3.50

Spread

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 43...51

Testing:

1st rack travel in: 10.00

rpm : 1140...1150 Speed

2nd rack travel in: 4.00 Speed rpm: 1205...1215 4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 16...24

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.4

Testing:

rpm : 100 Speed

Minimum rack trave: 19.00

Speed rpm : 400 Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00

rpm : 585...645 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.00...11.10

2nd speed rpm : 700

Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700

Del.quantity cm3/: 127.5...130.5

1000 s: (125.0...133.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

rom : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/ : 130.0...150.0

1000 s: (125.0...155.0)

LOW IDLE

rpm : 400 Speed

K23

Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 31.0...35.0 1000 s: (28.5...37.5) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: JOHN DEERE # RE29255

Adjustment without torque-control spring retainer with 1 mm less Start-of-delivery mark = 13,5° after start of delivery cyl. 1. rque-control

spring retainer.

Note remarks

: DEE 7,6 w 1 : 20.12.88 Test sheet Edition : 15.6.88 Replaces : ISO-4113 Test oil

Combination no. : 0 400 876 350

Injection pump

Pump designation : PES6A100D410RS2754 EP type number : 0 410 806 002

Governor

Governor design. : RSV425...1100A2C2234

: 0 420 232 498 Governer no.

Customer-spec. information

Customer : JOHN DEERE

: 6076TRW04 Engine

: 122.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 27...29

: 2.95...3.05 : (2.90...3.10) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.60...10.70

Del.quantity cm3/: 10.0...10.2

100 s: (9.8...10.4)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 425.0 2nd speed Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.9...2.3

100 s: (1.6...2.5)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Speeu Del.quantity 1000 : 100.5...102.5

: (98.5...104.5) : 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 9.60 Speed rpm : 1145...1155 2nd rack travel in: 4.00

Speed rpm : 1195...1205 4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 18...26

Setting point w/out bumper spring

rpm : 425 Rack travel in mm: 4.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

rpm : 425

Rack travel in mm : 4.90...5.10 Rack travel in mm : 2.00

Speed rpm : 570...630

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 10.60...10.70
2nd speed rpm : 700
Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 700 Speed

Del.quantity cm3/: 123.5...126.5 1000 s: (121.0...129.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60

Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 95.0...115.0 1000 s: (90.0...120.0)

LOW IDLE

Speed rpm : 425 Rack travel in mm : 4.90...5.10

Del.quantity cm3/: 19.0...23.0

rpm : 1145...1155

1000 s: (16.5...25.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

: JOHN DEERE # RE29182

Adjustment without torque-control spring retainer with 1 mm less Start-of-delivery mark = 13,5° after start of delivery cyl. 1. rque-control

spring retainer.

Note remarks

: DEE 7,6 w 2 : 20.12.88 Test sheet Edition : 15.6.88 Replaces Test oil : ISO-4113

Combination no. : 0 400 876 351

Injection pump

Pump designation : PES6A100D410RS2754 : 0 410 806 002 EP type number

Governor

Governor design. : RSV425...1100A2C2234

-1L

Governer no. : 0 420 232 499

Customer-spec. information

Customer : JOHN DEERE

Engine : 6076 TRW01

: 106.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.95...3.05 Prestroke mm

: (2.90...3.10) Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 9.70...9.80

Del.guantity cm3/: 8.9...9.1

100 s: (8.7...9.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 425.0 2nd speed

Rack travel in mm : 5.1...5.3 Del.quantity cm3/ : 1.9...2.3

100 s: (1.6...2.5)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 89.0...91.0 Del.quantity : (87.0...93.0) 1000

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 8.70

rpm : 1145...1155 Speed

2nd rack travel in: 4.00

Speed rpm : 1190...1200 4th rack travel in: 1300 Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever

position degrees: 16...24

Setting point w/out bumper spring

rpm : 425 Rack travel in mm : 4.7

Testing:

rpm : 100 Speed

Minimum rack trave: 19.00

rpm : 425 Speed

Rack travel in mm: 5.10...5.30 Rack travel in mm: 2.00 Speed rpm: 560...620

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 9.70...9.80

2nd speed rpm : 700

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

: 700 Speed rpm

Del.quantity cm3/: 110.5...113.5 1000 s: (108.0...116.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 100.0...120.0 1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425 Rack travel in mm : 5.10...5.30 Del.quantity cm3/ : 19.0...23.0 1000 s: (16.5...25.5)

Spread

cm3 : 3.50

1000 s: (5.50)

Remarks:

: JOHN DEERE # RE29303

Adjustment without torque-control spring retainer with 1 mm less Start-of-delivery mark = 13,5° after start of delivery cyl. 1. rque-control spring retainer.

Note remarks

Test sheet : DEE 7,6 w 3 : 20.12.88 : 15.6.88 Replaces : ISO-4113 Test oil

Combination no. : 0 400 876 352

Injection pump

Pump designation : PES6A100D410RS2754

: 0 410 806 002 EP type number

Governor

: RSV400...1100A2C2204 Governor design.

-4L

: 0 420 232 500 Governer no.

Customer—spec. information

Customer : JOHN DEERE

Engine : 6076 ADW-01

1st version kW : 146.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Edition

Phasing

Prestroke mm

Firing order

: 0-60-120-180-240-300

: 1-5-3-6-2-4

: 2.95...3.05

: (2.90...3.10)

Tolerance + - C : 0.50 (0.75)

Rack travel in mm : 10.50

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 11.2...11.4

100 s: (11.0...11.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 3.1...3.5 100 s: (2.8...3.7)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

: 112.0...114.0 Del.quantity 1000 : (110.0...116.0)

: 3.50 cm3

Spread 1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 40...48

Testing:

1st rack travel in: 10.60 Speed rpm : 1145...1155 2nd rack travel in: 4.00 Speed rpm : 1210...1220 3rd rack travel in: 4.00 rpm : 1220...1250 Speed 4th rack travel in: 1350 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm : 5.4 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 rpm : 585...645 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 11.60...11.70 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.60 rpm : 1145...1155 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0 1000 s: (125.0...155.0) LOW IDLE rpm : 400 Speed Rack travel in mm: 5.80...6.00
Del.quantity cm3/: 31.0...35.0
1000 s: (28.5...37.5)
Spread cm3: 3.50
1000 s: (5.50) Remarks: : JOHN DEERE # RE35847 Start-of-delivery mark = 13,5° after start of delivery cyl. 1. **APPLICATION**

Wheel Loader

L01

Note remarks

: DEE 7,6 w 4 : 20.12.88 Test sheet Edition

Replaces

Test oil : ISO-4113

: 0 400 876 354 Combination no.

Injection pump

Pump designation : PES6A100D410RS2754

: 0 410 806 002 EP type number

: 0 420 232 511 Governer no.

Customer-spec. information

: JOHN DEERE

Engine

: 98.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

: 1 457 413 010

Test nozzle holder

: 1 688 901 101 assembly

Opening.

diameter mm : 0,6

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Governor

Governor design. : RSV425...1100A2C2235

Customer

: 6076TRW06

Test oil

inlet temp. °C : 38...42

Overflow valve

Inlet press., bar: 1.50

: 207...210 pressure, bar

Orifice plate

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

T05

Prestroke mm : 2.95...3.05

: (2.90...3.10)

Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 9.00...9.10

Del.quantity cm3/: 8.3...8.5

100 s: (8.1...8.7)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 425.0 2nd speed Rack travel in mm : 4.9...5.1 Del.quantity cm3/ : 1.9...2.3

100 s: (1.6...2.5)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

1st version

Speed rpm : 1100

: 83.5...85.5 Del.quantity 1000 : (81.5...87.5)

FULL LOAD DELIV. AT FULL LOAD STOP

: 3.50 Spread cm3

: (6.00) 1000

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 8.00 Speed rpm : 1145...1155 2nd rack travel in: 4.00

Speed rpm : 1190...1200 4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control Lever

position degrees: 18...26

Setting point w/out bumper spring rpm : 425

Rack travel in mm: 4.5

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 rpm : 425

Rack travel in mm: 4.90...5.10
Rack travel in mm: 2.00
Speed rpm: 570...630

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 9.00...9.10

2nd speed rpm : 650

Rack travel in m: 9.50...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

: 650 Speed rom

Del.quantity cm3/: 103.0...106.0 1000 s: (100.5...108.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.00

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 100.0...120.0

1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425 Rack travel in mm : 4.90...5.10

Del.quaritity cm3/: 19.0...23.0 1000 s: (16.5...25.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

: JOHN DEERE # RE36069 Setting without torque-control spring retainer with 1 mm control-rod travel less. Raising of full-load delivery with torque-control spring retainer to 9,0 mm control-rod travel.

Start-of-delivery mark = 13,5° after start of delivery cyl. 1.

Note remarks

Test sheet : DEE 7,6 w 5 : 20.12.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 400 876 355

Injection pump

Pump designation : PES6A100D410RS2754

EP type number : 0 410 806 002

Governor

Governor design. : RSV425...1100A2C2235

-1L

: 0 420 232 512 Governer no.

Customer-spec. information

: JOHN DEERE Customer

: 6076TRW07 Engine

: 129.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

L04

: 2.95...3.05 : (2.90...3.10) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 425.0 2nd speed Rack travel in mm : 4.9...5.1 Del.quantity cm3/: 1.9...2.3 100 s: (1.6...2.5)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 105.0...107.0 1000 : (103.0...109.0) Del.quantity

cm3 : 3.50Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.00 Speed rpm : 1145...1155

2nd rack travel in: 4.00 rpm : 1200...1210 Speed

4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 18...26

Setting point w/out bumper spring

rpm : 425 Rack travel in mm: 4.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 425

Rack travel in mm : 4.90...5.10 Rack travel in mm : 2.00

: 570...630 Speed rom

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.00...11.10 2nd speed rpm : 700 Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

: 700 Speed rpm

Del.quantity cm3/: 131.5...134.5 1000 s: (129.0...137.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0 1000 s: (125.0...155.0)

LOW IDLE

Speed rpm : 425 Rack travel in mm : 4.90...5.10

Del.quantity cm3/: 19.0...23.0 1000 s: (16.5...25.5)

Spread cm3 : 3.501000 s: (5.50)

Remarks:

: JOHN DEERE # RE36071

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control Start-of-delivery mark = 12,5° after start of delivery cyl. 1.

L05

Note remarks

: DAF 6,2 o 5 : 28.11.88 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 400 876 356

Injection pump

Pump designation : PES6A95D32ORS2693 EP type number : 0 410 896 914

Governor

Governor design. : RSV300...1300A0c2195

-1R

: 0 420 233 222 Governer no.

Customer-spec. information Customer

: DNT 620 Engine

1st version kW : 150.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm

: (1.95...2.15)

LOS

Rack travel in mm : 7.50...10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50

& maximum rack tra: 21.00 Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 11.80...11.90

Del.quantity cm3/ : 7.7...7.8

100 s: (7.5...8.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm : 6.3...6.5

Del.quantity cm3/: 0.7...1.1 100 s: (0.4...1.3)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850 Aneroid pressure h: 700

Aneroid ... Deliquantity 1000 : 77.0...78.0 : (75.0...80.0)

: 3.50 Spread cm3

: (6.00) 1000

RATED SPEED

1st version

Control lever position degrees: 56...64 Testing: 1st rack travel in: 9.70 rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1400...1430 3rd rack travel in: 4.00 Speed rpm : 1420...1450 4th rack travel in: 1590 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 25...33 Setting point w/out bumper spring rpm : 300 Rack travel in mm : 5.9 Testing: Speed rpm : 100 Minimum rack trave: 19.50 rpm : 300 Rack travel in mm : 6.30...6.50 Rack travel in mm : 2.00 : 590...650 Speed rpm TORQUE CONTROL Torque control curve - 1st version rpm : 1290 1st speed Rack travel in m: 10.70...10.80 rpm : 500 2nd speed Rack travel in m: 11.80...11.90 3rd speed rpm : 980 Rack travel in m: 11.30...11.50 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : -Pressure : 11.30...11.50 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 11.60...11.70 3rd pressure hPa : 700 Rack travel in m: 11.80...11.90 FUEL DELIVERY CHARACTERISTICS 1st version

STARTING FUEL DELIVERY

rpm : 1340...1350

LOW IDLE

Speed

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

.

L07

Aneroid pressure h: 700

Note remarks

Test sheet : DEE 7,7 d Edition : 20.12.88

Replaces

Test oil : ISO-4113

Combination no. : 0 400 876 357

Injection pump

Pump designation : PES6A100D410RS2762

EP type number :

er : 0 410 806 003

Governor

Governor design. : RSV400...1100A2C2229

l

Governer no. : 0 420 232 492

Customer-spec. information

Customer : JOHN DEERE

Engine : 6076 TF

1st version kW : 142.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

L08

Prestroke mm : 2.95...3.05 : (2.90...3.10)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 12.0...12.2

100 s: (11.8...12.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0 Rack travel in mm : 5.0...5.2

Del.quantity cm3/: 1.9...2.3

100 s: (1.6...2.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800

Governor spring pre-tension

Rack travel in mm : 0.30...0.70

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1100

Del.quantity : 120.0...122.0

1000 : (118.0...124.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testina:

1st rack travel in: 11.00

rpm : 1145...1155 Speed

2nd rack travel in: 4.00

Speed rpm : 1205...1215 4th rack travel in: 1300 Speed

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 16...24

Setting point w/out bumper spring

Speed rpm: 400 Rack travel in mm: 4.6

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 5.00...5.20 Rack travel in mm : 2.00

: 550...610 Speed rom

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.00...12.10 2nd speed rpm : 700 Rack travel in m: 13.90...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700

Del.quantity cm3/: 151.0...154.0 1000 s: (148.5...156.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 100.0...120.0 1000 s: (95.0...125.0)

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.00...5.20

Del.quantity cm3/: 19.0...23.0 1000 s: (16.5...25.5)

L09

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

: JOHN DEERE # RE32036

Adjustment without torque-control spring retainer with 1 mm less Start-of-delivery mark = 13,5° after start of delivery cyl. 1. rque-control

spring retainer.

Note remarks

Test sheet : DEE 7,7 d 1 Edition : 20.12.88

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 876 359

Injection pump

Pump designation : PES6A100D410RS2762

EP type number

: 0 410 806 003

Governor

: RSV400...1100A2C2204 Governor design.

-2L

Governer no.

: 9 420 234 177

Customer-spec. information

Customer

: JOHN DEERE

Engine

: 6466 TT

1st version kW

: 124.0

Rated speed

: 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 130...150

Test nozzle holder

assembly : 1 688 901 101

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.95...3.05 Prestroke mm

: (2.90...3.10)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 3.1...3.5

100 s: (2.8...3.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 105.0...107.0 Del.quantity 1000 : (103.0...109.0) cm3 : 3.50

Spread

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 43...51

Testina:

1st rack travel in: 10.00

rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1205...1215

4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 16...24

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.4

Testina:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00

Speed : 585...645 rom

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.00...11.10 2nd speed rpm : 700

Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700 Del.quantity cm3/ : 127.5...130.5 1000 s: (125.0...133.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 100.0...120.0

1000 s: (95.0...125.0)

LOW IDLE

rpm : 400 Speed

L11

Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 31.0...35.0 1000 s: (28.5...37.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

: JOHN DEERE # 29255

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

Start-of-delivery mark = 13,5° after

start of delivery cyl. 1.

APPLICATION Wheel loader

Note remarks

Test sheet : DEE 7,7 d 2 Edition : 20.12.88

Replaces

: ISO-4113 Test oil

Combination no. : 0 400 876 360

Injection pump

Pump designation : PES6A100D410RS2762

EP type number : 0 410 806 003

Governor

Governor design: RSV425...1100A2C2225

: 9 420 234 176 Governer no.

Customer-spec. information

: JOHN DEERE Customer

Engine : 6076ARW-06

1st version kW : 146.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.95...3.05 : (2.90...3.10) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 1100 1st speed

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 11.7...11.9

100 s: (11.5...12.1)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 425.0 2nd speed

Rack travel in mm : 4.9...5.1 Del.quantity cm3/: 1.8...2.2

100 s: (1.5...2.4) cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

Speed rpm : 1100 Aneroid pressure h: 900

: 117.0...119.0 Del.quantity

1000 : (115.0...121.0) cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 11.00

Speed rpm : 1140...1150 2nd rack travel in: 4.00

Speed rpm : 1205...1215 4th rack travel in: 1300

LOW IDLE 1

Control lever

position degrees: 17...25

Setting point w/out bumper spring

rpm : 425 Rack travel in mm: 4.5

Testing:

rpm : 100 Speed Minimum rack trave: 19.00

rpm : 425

Rack travel in mm: 4.90...5.10 Rack travel in mm: 2.00 Speed rpm: 570...630

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.00...12.10

2nd speed rpm : 650

Rack travel in m: 13.90...14.10

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 hPa : 900 Speed Pressure

Rack travel mm : 13.90...14.10

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 11.70...11.90

2nd pressure hPa : 535

Rack travel in m: 12.30...12.40 3rd pressure hPa : 720

Rack travel in m: 13.30...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

: 650 rpm

Del.quantity cm3/: 150.5...153.5 1000 s: (148.0...156.0)

Aneroid pressure h: -

Speed rpm : 500

rpm : 0.30...1.40 Speed

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

rpm : 1140...1150 Speed

Del.quantity cm3/: 129.0...133.0 1000 s: (126.0...136.0)

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 100.0...120.0 1000 s: (95.0...125.0)

LOW IDLE

rpm : 425 Speed

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 18.0...22.0

1000 s: (15.5...24.5) cm3 : 3.50

Spread

1000 s: (5.50)

Remarks:

: JOHN DEERE # 29298

Adjustment without torque-control spring retainer with 1 mm less Start-of-delivery mark = 13,5° after start of delivery cyl. 1. rque-control APPLICATION ner.

Tractor (tractor engines)

Note remarks

: DEE 7,7 d 3 Test sheet : 20.12.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 400 876 361

Injection pump

Pump designation : PES6A100D410RS2762

EP type number : 0 410 806 003

Governor

Governor design. : RSV400...1100A2C2204

-4L

: 0 420 232 500 Governer no.

Customer-spec. information

: JOHN DEERE Customer

: 6076 ADW-01 Engine

: 146.0 1st version kW

: 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Openina (

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.95...3.05 : (2.90...3.10) Prestroke mm

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 11.2...11.4

100 s: (11.0...11.6)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 3.1...3.5 100 s: (2.8...3.7)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Del.quantity : 112.0...116.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 10.60 Speed rpm : 1145...1155 2nd rack travel in: 4.00 rpm : 1210...1220 Speed 3rd rack travel in: 4.00 Speed rpm : 1220...1250 4th rack travel in: 1350 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm: 5.4 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 Speed rpm : 585...645 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 11.60...11.70 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.60 Speed rpm : 1145...1155 STARTING FUEL DELIVERY LOW IDLE rpm : 400 Speed Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 31.0...35.0 1000 s: (28.5...37.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: : JOHN DEERE # RE35847 Start-of-delivery mark = 13,5° after start of delivery cyl. 1. **APPLICATION**

Wheel loader

L15

Note remarks

: DEE 7,7 e : 20.12.88 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 400 876 362

Injection pump

Pump designation : PES6A100D410RS2764

EP type number : 0 410 806 004

Governor

: RSV600...1100A2C2161 Governor design.

-6L

: 0 420 232 505 Governer no.

Customer-spec, information

Customer : JOHN DEERE

: 6466 AZ Engine

: 152.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55

: (2.40...2.60)

Rack travel in mm : 10.50

: 1-5- 3- 6- 2- 4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 12.9...13.1

100 s: (12.7...13.3)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 600.0 Rack travel in mm : 5.7...5.9 Del.quantity cm3/ : 1.4...1.8

100 s: (1.1...2.0) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Dearee: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 900

Del.quantity : 129.5...131.5 1000 : (127.5...133.5)

: 3.50 cm3 Spread 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 37...45

Testina:

1st rack travel in: 11.50

rpm : 1145...1155 Speed

L16

2nd rack travel in: 4.00

rpm : 1195...1205 Speed

3rd rack travel in: 4.00

rpm : 1215...1245 Speed

4th rack travel in: 1300

: 0.30...1.40 Speed rpm

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring

rpm : 600 Rack travel in mm : 5.2

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 rpm : 600 Speed

Rack travel in mm: 5.60...5.80
Rack travel in mm: 2.00
Speed rpm: 720...780

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 900 Pressure

: 12.50...12.60 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.00...9.20

2nd pressure hPa : 175

Rack travel in m: 10.10...10.20

3rd pressure hPa : 285

Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 68.5...72.5

1000 s: (65.5...75.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50

rpm : 1145...1155 Speed

L17

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 180.0...200.0 1000 s: (175.0...205.0)

LOW IDLE

Speed rpm : 600
Rack travel in mm : 5.70...5.90
Del.quantity cm3/ : 14.0...18.0 1000 s: (11.5...20.5)

cm3 : 3.50

Spread 1000 s: (5.50)

Remarks:

: JOHN DEERE # RE35281

Start-of-delivery mark at control-rod travel 10.5 mm and 15° after start of

delivery.

Note remarks

Test sheet : DEE 7,7 f Edition : 20.12.88

Replaces

Test oil : ISO-4113

Combination no. : 0 400 876 363

Injection pump

Pump designation : PES6A100D410RS2765

: 0 410 806 005 EP type number

Governor

: RSV400...1100A2C2204 Governor design.

-5L

: 0 420 232 506 Governer no.

Customer-spec. information

Customer : JOHN DEFRE

Engine : 6466AT-01

: 125.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.45...2.55 Prestroke mm

: (2.40...2.60)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 10.90...11.00

Del.guantity cm3/: 11.0...11.2

100 s: (10.8...11.4)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.02nd speed Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed

rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 110.0...112.0 Del.quantity 1000 : (108.0...114.0)

: 3.50 cm3

Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testina:

1st rack travel in: 9.90

Speed rpm : 1145...1155 2nd rack travel in: 4.00

: JOHN DEERE # RE35282

4th rack travel in: 1300 rpm : 0.30...1.40 Speed Adjustment without torque-control LOW IDLE 1 spring retainer with 1 mm less Start-of-delivery mark at control-rod travel 10.5 mm and 15° after start of

delivery. ainer.

Control lever position degrees: 25...33

Setting point w/out bumper spring rpm : 400

rpm : 1220...1230

Rack travel in mm : 5.5

Testing:

Speed

Speed rpm Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00

rpm : 585...645 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed

st speed rpm : 1100 Rack travel in m: 10.90...11.00

2nd speed rpm : 700

Rack travel in m: 11.80...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 700 Speed

Del.quantity cm3/: 114.5...117.5 1000 s: (112.0...120.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.90

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 180.0...200.0

1000 s: (175.0...205.0)

LOW IDLE

rpm : 400 Speed

Rack travel in mm: 5.90...6.10
Del.quantity cm3/: 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3: 3.50

1000 s: (5.50)

Remarks:

L19

Note remarks

Test sheet : DEE 7,7 d 4 Edition : 30.09.88

Replaces

Test oil : ISO-4113

Combination no. : 0 400 876 364

Injection pump

Pump designation : PES6A100D410RS2762

: 0 410 806 003 EP type number

Governor

: RSV425...1100A2C2225 Governor design.

-4L

: 0 420 232 510 Governer no.

Customer-spec. information

Customer : JOHN DEERE

Engine : 6076 TRW 05

1st version kW : 122.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm

Firing order

: 2.95...3.05

: (2.90...3.10) Rack travel in mm : 10.50

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm : 1100

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 9.7...9.9

100 s: (9.5...10.1)

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 425.0 2nd speed Rack travel in mm : 4.9...5.1 Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4) cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed Aneroid pressure h: 900
Del.quantity : 97.5...99.5
1000 : (95.5...101.5)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

L20

Testing:

1st rack travel in: 9.40

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1180...1210 4th rack travel in: 1325 Speed rpm

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 18...26

Setting point w/out bumper spring

: 425 rpm Rack travel in mm: 4.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm: 425 Rack travel in mm: 4.90...5.10

Rack travel in mm : 2.00

rpm : 570...630 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.40...10.50

2nd speed rpm : 700

Rack travel in m: 11.60...11.80

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rom : 500

hPa : 900 Pressure

Rack travel mm : 11.60...11.80

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 11.20...11.40 2nd pressure hPa : 295

Rack travel in m: 11.50...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 700 Del.quantity cm3/ : 120.5...123.5 1000 s: (118.0...126.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 125.0...129.0 1000 s: (122.0...132.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 130.0...150.0 1000 s: (125.0...155.0)

LOW IDLE

rpm : 425 Speed

Rack travel in mm : 4.90...5.10

Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: JOHN DEERE # RE36072

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control Start-of-delivery mark = 13,5° after start of delivery cyl. 1.

Note remarks

: KHD 1 g 39 : 24.10.88 Test sheet Edition

Replaces

: TSO-4113 Test oil

Combination no. : 0 400 876 365

Injection pump

Pump designation : PES6A85D41ORS2761-1

: 0 410 886 894 EP type number

Governor

Governor design. : RSV325...1150A8C2020

-1L

: 0 420 232 515 Governer no.

Customer-spec. information Customer : KHD

: BF6L913 Engine

: 110.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.50...2.60 Prestroke mm

: (2.45,..2.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 12.00...12.10

Del.guantity cm3/: 8.3...8.4

100 s: (8.1...8.6)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 325.0 Rack travel in mm : 7.3...7.5 Del.quantity cm3/ : 0.8...1.4

100 s: (0.6...1.6)

cm3 : 0.2Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed Aneroid pressure h: 700

: 83.5...84.5 Del.quantity 1000 : (81.5...86.5)

: 3.00 cm3 Spread

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 11.00

Speed rpm : 1190...1200

2nd rack travel in: 4.00

rpm : 1220...1250 Speed

3rd rack travel in: 4.00 Speed rpm : 1275...1305 4th rack travel in: 1440 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 13...21 Setting point w/out bumper spring Speed rpm : 325

Testing:

Speed rpm : 100 Minimum rack trave: 19.50 rpm : 325 Speed

Rack travel in mm: 6.9

Rack travel in mm : 7.30...7.50 Rack travel in mm : 2.00

: 590...650 Speed rpm

TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 12.00...12.10 2nd speed rpm : 500 Rack travel in m: 12.90...13.00 3rd speed rpm : 890

Rack travel in m: 12.30...12.50

Ameroid/Altitude Compensator Test

1st version Setting Speed rpm : 500 Pressure hPa : -

Rack travel mm : 11.50...11.60

Measurement

1/min : 500 Speed

1st pressure hPa : 300

Rack travel in m: 11.80...12.00

3rd pressure hPa : 700

Rack travel in m: 12.90...13.00

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 700

rpm : 750

Del.quantity cm3/: 89.0...91.0 1000 s: (86.5...93.5)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 64.5...65.5 1000 s: (62.5...67.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 110.0...120.0 1000 s: (107.0...123.0)

Rack travel in mm : 17.00...17.40

Remarks:

APPLICATION Tractor (tractor engines)

Note remarks

: MB 6,0 c 6 : 11.11.88 Test sheet Edition

Replaces

Test oil : ISO-4113

: 0 400 876 366 Combination no.

Injection pump

Pump designation : PES6A90D410RS2710 EP type number : 0 410 896 082

Governor

: RSV350...1200A1c1154 Governor design.

-11

: 0 420 232 470 Governer no.

Customer-spec. information

: DAIMLER-BENZ Customer

Engine : OM 366

: 81.0 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.25...2.35 Prestroke mm

: (2.20...2.40)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 9.80...9.90

Del.quantity cm3/: 5.3...5.4

100 s: (5.1...5.6)

Spread cm3 : 0.3

100 s: (0.4)

rpm : 370.0 2nd speed Rack travel in mm: 7.8...8.4 Del.quantity cm3/: 1.0...1.2

100 s: (0.8...1.4)

cm3 : 0.2 Spread 100 s: (8.4)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 53.0...54.0 1000 : (51.0...56.0) cm3 : 3.00

Spread 1000 : (4.50)

RATED SPEED

1st version Control lever

position degrees: 59...67

Testing:

1st rack travel in: 8.80

rpm : 1240...1245 Speed

2nd rack travel in: 4.00

rpm : 1262...1275 Speed

3rd rack travel in: 4.00

rpm : 1305...1335 Speed 4th rack travel in: 1400 Speed rpm : 0.30...1.40 5th rack travel in: 1250...1260 Speed rpm : 8.80 LOW IDLE 1 Control Lever position degrees: -3 Setting point w/out bumper spring rpm : 370 Rack travel in mm: 8.1 Testina: Speed rpm : 100 Minimum rack trave: 19.50 rom : 370 Speed Rack travel in mm : 8.00...8.20 Rack travel in mm : 2.00 rpm : 470...530 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 9.80...9.90 2nd speed rpm : 600 Rack travel in m: 11.30...11.40 3rd speed rpm : 850 Rack travel in m: 11.10...11.30 4th speed rpm : 950 Rack travel in m: 10.30...10.60 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 600 Speed Del.quantity cm3/ : 50.0...52.0 1000 s: (47.5...54.5) rpm : 850 Speed Del.quantity cm3/: 51.0...54.0 1000 s: (48.5...56.5) STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 85.0...95.0 1000 s: (82.0...98.0) Rack travel in mm : 17.10...17.50 LOW IDLE Speed rpm : 370
Rack travel in mm : 7.80...8.40
Del.quantity cm3/ : 10.0...12.0
1000 s: (8.0...14.0)
Spread cm3 : 2.50 1000 s: (84.50)

Remarks:

APPLICATION Unimog

L25

Note remarks

Test sheet : RAB 10,8 a Edition : 02.12.88 Replaces : 30.3.87 : ISO-4113 Test oil

Combination no. : 0 401 276 051

Injection pump

Pump designation : PES6A100D410RS3039

EP type number : 0 411 206 018

Governor

Governor design. : RSV475...950A1C2121L

Governer no. : 0 420 232 384

Customer-spec. information Customer : RABA

Engine : D2156 MKTL6

: 184.0 1st version kW Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening |

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 1.60...1.70 Prestroke mm

: (1.55...1.75)

Rack travel in mm : 9.00...12.00

L26

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 950

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 15.2...15.4

100 s: (15.0...15.6)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 475.0 2nd speed Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.1...1.5

100 s: (0.9...1.8)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting \bar{x} : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950 Aneroid pressure h: 750

: 152.0...154.0 Del.quantity 1000 : (150.0...156.0)

: 3.00 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 45...53

Testina:

1st rack travel in: 12.60

Speed rpm : 990...1000

2nd rack travel in: 4.00

rpm : 1025...1055 Speed 3rd rack travel in: 4.00 rpm : 1030...1060 Speed 4th rack travel in: 1195 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring rpm : 475 Rack travel in mm : 5.5 Testing: rpm : 100 Speed Minimum rack trave: 19.50 rpm : 475 Speed Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 : 570...630 Speed rpm rpm : 675 Speed Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 950 Rack travel in m: 13.60...13.70 2nd speed rpm : 500 Rack travel in m: 15.70...15.80 3rd speed rpm : 840 Rack travel in m: 14.90...15.10 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 hPa : 750 Pressure Rack travel mm : 15.70...15.80 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 13.40...13.50 2nd pressure hPa : 550 Rack travel in m: 15.00...15.10 3rd pressure hPa : 420 Rack travel in m: 14.10...14.30 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 750 rpm : 750

Del.quantity cm3/: 180.0...184.0

1000 s: (178.0...186.0)

Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: <149.0 1000 s: (<151.0) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.60 rpm : 990...1000 Speed

Remarks:

APPLICATION Tractor (tractor engines)

L27

Note remarks

Test sheet : KHD 19,2 b2

Edition : 11.11.88

Replaces

: ISO-4113 Test oil

Combination no. : 0 401 840 763

Injection pump

Pump designation : PE12P110A920LS3173

: 0 411 810 708 EP type number

Governor

Governor design. : RQ300/1000PA803-1

: 0 421 801 463 Governer no.

Customer-spec. information

Customer : KHD

: BF12L513/C Engine

: 342.0 : 2000 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1-4-9-8-5-2-Firing order

11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-

180-195-240-255-300-

: 0.50 (0.75) Tolerance + - ⁰

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 16.4...16.6

100 s: (16.1...16.9)

Spread cm3 : 0.5

100 s: (0.8)

rpm : 300.0 2nd speed Rack travel in mm: 6.6...6.8 Del.quantity cm3/: 1.5...2.1

100 s: (1.2...2.3)

cm3 : 0.7Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

: 164.0...166.0 Del.quantity 1000 : (161.0...169.0)

: 5.00 cm3

Spread

1000 : (8.00)

RATED SPEED

1st version

Setting point:

rpm

: 600 Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.50

rpm : 1035...1050 Speed

2nd rack travel in: 4.00

rpm : 1090...1120 Speed

4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 6.7

Testing:

Speed rpm: 100
Minimum rack trave: 8.10
Speed rpm: 300
Rack travel in mm: 6.60...6.80
Rack travel in mm: 2.00

rpm : 340...380 Speed

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 12.50...12.60 2nd speed rpm : 650

Rack travel in m: 12.80...13.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50

rpm : 1035...1050 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 135.0...165.0

1000 s: (131.0...169.0)

Remarks:

APPLICATION

Generator set

Note remarks

: KHD 19,2 a3 Test sheet : 16.12.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 401 840 764

Injection pump

Pump designation : PE12P110A920LS3173

: 0 411 810 708 EP type number

Governor

Governor design. : RQV300...1150PA820-1

: 0 421 813 727 Governer no.

Customer-spec. information Customer : KHD

: BF12L513 Engine

1st version kW : 353.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 9- 8- 5- 2-

: 0-15-60-75-120-135-Phasina

180-195-240-255-300-

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rom : 1150

Rack travel in mm : 12.00...12.10

Del.guantity cm3/: 15.1...15.3

100 s: (14.8...15.6)

cm3 : 0.5Spread

100 s: (0.8)

rpm : 300.0 2nd speed Rack travel in mm : 6.7...6.9
Del.quantity cm3/ : 1.5...2.1
100 s: (1.2...2.3)

Spread cm3 : 0.7100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.10...1.40 travel mm

2nd speed rpm : 450

travel mm : 2.80...3.20 3rd speed rpm : 750

: 4.90...5.30 travel mm

: 1200 4th speed man : 8.40...8.60 travel mm

: 1300 5th speed rpm

: 9.40...9.80 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1190 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

Aneroid pressure h: 750

Del.quantity : 151.0...153.0 1000 : (148.0...156.0)

: 5.00 cm3 Spread

1000 : (8.00)

RATED SPEED

1st version Control lever

position degrees: 54...62

Testing:

1st rack travel in: 11.00

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

Speed rpm : 1290...1320 4th rack travel in: 1400

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 20...28

Testing:

rpm : 100 Speed Minimum rack trave: 8.30 Speed rpm : 300 Rack travel in mm : 6.70...6.90

CONSTANT REGULATION

rpm : 300...510 Speed

TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 12.00...12.10

rpm : 650 2nd speed

Rack travel in m: 12.30...12.50

rpm : 1000 3rd speed

Rack travel in m: 12.20...12.30

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 450 rpm hPa : 750 Pressure

: 12.30...12.50 Rack travel mm

Measurement

Speed 1/min: 450

1st pressure hPa : -

Rack travel in m: 10.70...10.90

2nd pressure hPa : 410

Rack travel in m: 11.60...11.70

3rd pressure hPa : 350

Rack travel in m: 11.00...11.20

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750 Speed rpm : 650

Del.quantity cm3/: 156.0...160.0

1000 s: (153.0...163.0)

Aneroid pressure h: -

Speed rpm : 450 Del.quantity cm3/ : 118.0...122.0 1000 s: (115.0...125.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 160.0...180.0

1000 s: (156.0...184.0)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

: KHD 19,2 a2 Test sheet : 26.12.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 401 840 765

Injection pump

Pump designation : PE12P110A920LS3173

EP type number : 0 411 810 708

Governor

Governor design. : RQV300...1000PA907

Governer no. : 0 421 813 729

Customer-spec. information

Customer : KHD

: BF12L513C Engine

1st version kW : 315.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1- 4- 9- 8- 5- 2-Firina order

MO4

11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-

180-195-240-255-300-

315

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.90...12.00

Del.guantity cm3/: 14.9...15.1

100 s: (14.6...15.4)

cm3 : 0.5Spread

100 s: (0.8)

rpm : 300.0 2nd speed

Rack travel in mm : 6.6...6.8

Del.quantity cm3/ : 1.5...2.1

100 s: (1.2...2.3)

Spread cm3 : 0.7

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.60...1.90 travel mm

2nd speed rpm : 450

travel mm : 3.00...3.40

3rd speed rpm : 750

: 5.20...5.60 travel mm

rpm : 1050 4th speed

travel mm : 7.90...8.10

: 1120 5th speed rpm

: 9.50...9.90 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1040 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

: 149.0...151.0 Del.quantity

1000 : (146.0...154.0)

cm3 : 5.00 1000 : (8.00) Spread

RATED SPEED

1st version Control lever

position degrees: 52...60

Testing:

1st rack travel in: 10.90 rpm : 1040...1050 Speed

2nd rack travel in: 4.00

Speed rpm : 1105...1135

4th rack travel in: 1250

Speed rpm : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 20...28

Testing:

rpm : 100 Speed Minimum rack trave: 8.10 Speed rpm : 300

Rack travel in mm : 6.60...6.80

CONSTANT REGULATION

rpm : 315...550 Speed

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 11.90...12.00

2nd speed rpm : 650

Rack travel in m: 12.40...12.50 3rd speed rpm : 800 Rack travel in m: 12.20...12.40

START CUT-OUT

1/min : 220 (240) Speed

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.90

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...165.0 1000 s: (131.0...169.0)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

M₀5

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-5- 3- 6- 2- 4 Firing order Note remarks : DAF 11,6 i8 : 02.12.88 : 12.9.86 Test sheet : 0-60-120-180-240-300 Phasing Edition Replaces Tolerance + - 0 : 0.30 (0.75) Test oil : ISO-4113 BASIC SETTING : 0 401 846 463 Combination no. rpm: 850 1st speed Injection pump Pump designation : PE6P110A320RS372-1 Rack travel in mm : 12.00...12.10 EP type number : 0 411 816 145 Governor Del.quantity cm3/: 13.7...13.9 Governor design. : RQ250/1100PA417-1 : 0 421 801 205 100 s: (13.4...14.1) Governer no. Customer-spec. information Spread cm3 : 0.4Customer : DAF 100 s: (0.7) : DKTD 1160 Engine 2nd speed rpm : 250.0 1st version kW : 191.0 Rack travel in mm : 6.6...6.8 Rated speed : 2200 Del.quantity cm3/: 0.7...1.1 100 s: (0.4...1.3) cm3 : 0.4 100 s: (0.7) TEST BENCH REQUIREMENTS Spread Test oil inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -1 rpm : 700 : 1 417 413 025 Speed Rack travel in mm : 15.60...16.40 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 0 681 343 009 assembly 1st version rpm : 850 Speed Opening. Aneroid pressure h: 700 : 172...175 : 137.0...139.0 pressure, bar Del.quantity 1000 : (134.5...141.5) : 4.00 Spread cm3 Test lines : 1 680 750 015 1000 : (7.50) Outside diameter RATED SPEED x Wall thickness : 6.00x1.50x600 x Length mm 1st version (A) Injection pump setting values Setting point: Insp. values in parentheses Speed rpm : 700 Rack travel in mm : 16.0 Set equal delivery quant. per values Testing: 1st rack travel in: 11.00 BEGINNING OF DELIVERY Speed rpm : 1145...1160 2nd rack travel in: 4.00 Test pressure, bar: 25...27 Speed rpm: 1220...1250 4th rack travel in: 1350 Prestroke mm : 2.80...2.90 : (2.75...2.95)

rpm : 0.00...1.00

Speed

Rack travel in mm : 9.00...12.00

M06

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250 Rack travel in mm: 6.7

Testing:

rpm : 100 Speed Minimum rack trave: 7.80 rpm : 250 Speed

Rack travel in mm : 6.60...6.80 Rack travel in mm : 2.00

rpm : 460...500 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 12.20...12.30

2nd speed rpm : 1100

Rack travel in m: 12.10...12.30

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm hPa : 700 Pressure

: 12.00...12.10 Rack travel mm

Measurement

Speed 1/min: 600

1st pressure hPa : -

Rack travel in m: 11.40...11.60

2nd pressure hPa : 300

Rack travel in m: 11.80...11.90

3rd pressure hPa : 280

Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 600

Del.quantity cm3/: 128.0...130.0 1000 s: (125.5...132.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

rpm : 1145...1160 Speed

M07

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 245.0...285.0 1000 s: (241.0...289.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.60...6.80
Del.quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)

cm3 : 4.50Spread

1000 s: (7.50)

Remarks:

See VDT-I-420/115

Note remarks

: DAF 8,3 o 1 : 04.11.88 Test sheet

Edition Replaces : 7.84

: ISO-4113 Test oil

Combination no. : 0 401 846 471

Injection pump

Pump designation: PE6P100A720RS447

: 0 411 806 191 EP type number

Governor

Governor design. : RQ225/1200PA617 : 0 421 801 157 Governer no.

Customer-spec. information

Customer : DAF

: DHT 825 Engine

: 162.0 : 2400 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: D 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 3.20...3.30 : (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 11.8...12.0

100 s: (11.6...12.2)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 225.0 Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.0...1.4 100 s: (0.7...1.6)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 650 Speed

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

Aneroid pressure h: 700

Del.quantity : 170.5...122.5)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed : 650 rpm

Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.40

rpm : 1235...1250 Speed

2nd rack travel in: 4.00

rpm : 1305...1335 Speed

4th rack travel in: 1450

rpm : 0.00...1.00Speed

MO8

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 225 Rack travel in mm: 5.4

Testing:

: 100 Speed rpm Minimum rack trave: 6.00

Speed rpm : 225
Rack travel in mm : 5.30...5.50
Rack travel in mm : 2.00

rpm : 365...405 Speed

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1000 1st speed

Rack travel in m: 11.60...11.70

2nd speed rpm : 1200

Rack travel in m: 11.30...11.50

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rom hPa : 700 Pressure

: 11.40...11.50 Rack travel mm

Measurement

1/min: 600 Speed

Rack travel in m: 10.40...10.50 2nd pressure hPa : 315 Rack travel in m: 11.10...11.20 3rd pressure hPa : 270

Rack travel in m: 10.50...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 600 Speed

Del.quantity cm3/: 93.5...95.5 1000 s: (91.5...97.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1235...1250

STARTING FUEL DELIVERY

Speed rpm : 100

M09

Del.quantity cm3/: 210.0...230.0 1000 s: (206.0...234.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

rpm : 225 Speed

Remarks:

See VDT-I-420/115

Note remarks

: UNI 10,3 a Test sheet Edition : 09.12.88 : 7.84 Replaces

: ISO-4113 Test oil

Combination no. : 0 401 846 475

Injection pump

Pump designation : PE6P110A720RS453 EP type number : 0 411 816 150

Governor

Governor design: : RQV425...1000PA438-1

: 0 421 813 340 Governes no.

Customer-spec. information Customer : IVECO-UNIC

Engine : 8205-03-500

: 128.7 : 2000 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzie holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm : (1.95...2.15)

Rack travel in mm : 9.00...12.00

M10

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm : 1000 1st speed

Rack travel in mm : 10.00...10.10

Del.quantity cm3/: 9.8...10.1

100 s: (9.5...10.3)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 425.0 Rack travel in mm : 6.9...7.1 Del.quantity cm3/ : 2.1...2.7 100 s: (1.8...2.9)

cm3 : 0.4Spread

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1160 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

: 98.0...101.0 Del.quantity 1000 : (95.5...103.5)

: 4.00 Spread cm3

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 51...59

Testing:

1st rack travel in: 9.00

rpm : 1040...1050 Speed 2nd rack travel in: 4.00

rpm : 1150...1180 Speed 4th rack travel in: 1300

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 11...19

Testing:

Speed rpm : 100 Minimum rack trave: 8.50

Speed rpm: 425 Rack travel in mm: 6.90...7.10

CONSTANT REGULATION

Speed rpm : 420...515

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.00

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

Speed rpm : 200 Del.quantity cm3/ : 220.0...240.0 1000 s: (216.0...244.0)

Remarks:

Note remarks

Test sheet : ENA 11,9 h : 02.12.88 Edition : 5.8.88 Replaces : ISO-4113 Test oil

Combination no. : 0 401 846 482

Injection pump

Pump designation : PE6P120A320RS257 : 0 411 826 075 EP type number

Governor

Governor design. : RQV250...1100PA680

: 0 421 813 374 Governer no.

Customer-spec. information Customer : ENASA

: 96 T1 AX, BX Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1080 1st speed

Rack travel in mm : 10.00...10.10

Del.quantity cm3/: 18.8...19.0

100 s: (18.5...19.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 1.7...2.3 100 s: (1.4...2.6)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250 travel mm : 1.00...1.40

rpm : 350 2nd speed

: 1.70...2.30 travel mm

3rd speed : 650 rpm

: 4.00...4.60 travel mm : 1145

4th speed rpm travel mm

: 8.30...8.50 : 1225

5th speed rpm

: 9.20...9.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1130 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080

Aneroid pressure h: 900

Del.quantity : 100.0....93.0)

M12

Spread

cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 43...51

Testina:

1st rack travel in: 9.00

rpm : 1140...1150 Speed

2nd rack travel in: 4.00 Speed rpm : 1190...1220 4th rack travel in: 1320

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 16...22

Testing:

Speed rpm: 100 Minimum rack trave: 7.10 Speed rpm: 250

Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

rpm : 250...380 Speed

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 1080 Rack travel in m: 10.00...10.10

2nd speed rpm : 650

Rack travel in m: 10.50...10.70

rpm : 850 3rd speed

Rack travel in m: 10.20...10.40

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm hPa : 900 Pressure

: 10.20...10.40 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.70...9.10

2nd pressure hPa : 415

Rack travel in m: 10.00...10.10 3rd pressure hPa : 290 Rack travel in m: 9.20...9.40

START CUT-OUT

1/min : 170 (150) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 650 Speed

Del.quantity cm3/: 173.0...179.0 1000 s: (170.0...182.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 128.0...130.0

1000 s: (125.0...133.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.00

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Rack travel in mm : 19.50...21.00

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

: RVI 8,8 L Test sheet : 30.09.88 Edition : 6.4.88 Replaces : ISO-4113 Test oil

Combination no. : 0 401 846 499

Injection pump

Pump designation : PE6P120A320RS474 EP type number : 0 411 826 134

Governor

Governor design. : RQV275...1200PA425-3

Governer no. : 0 421 813 441

Customer-spec. information Customer : RVI

: MIDS062030 Engine

: 168.0 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.50...3.60 : (3.45...3.65) Prestroke mm

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

: 1 Time to cyl. no.

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 15.1...15.3

100 s: (14.8...15.6)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 275.0 2nd speed Rack travel in mm : 5.4...5.6 Del.quantity cm3/: 1.5...2.1

100 s: (1.2...2.4)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275

: 1.20...1.40 travel mm 2nd speed rpm : 400

2.90...3.40 travel mm

rpm : 900 3rd speed

: 5.80...6.00 travel mm

rpm : 1200 4th speed

travel mm : 7.80...8.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1250

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed Aneroid pressure h: 700

Del.quantity : 751.0....156.0)

cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Control lever position degrees: 62...70 Testing: 1st rack travel in: 10.90 Speed rpm : 1265...1275 2nd rack travel in: 4.00 : 1380...1410 Speed rpm 4th rack travel in: 1500 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 10...18 Testing: : 200 Speed rpm Minimum rack trave: 9.10 Speed rpm : 275 Rack travel in mm : 6.30...6.50 CONSTANT REGULATION rpm : 275...360 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 700 Pressure : 11.90...12.00 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.70...10.80
2nd pressure hPa : 195
Rack travel in m: 11.60...11.70
3rd pressure hPa : 175 Rack travel in m: 11.10...11.30 START CUT-OUT 1/min: 195 (215) Speed FUEL DELIVERY CHARACTERISTICS

1st version

Speed

M15

Aneroid pressure h: 700

rpm

Del.quantity cm3/: 139.0...145.0 1000 s: (136.0...148.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 92.0...94.0 1000 s: (89.0...97.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: -1.00 rpm : 1265...1275 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 105.0...125.0 1000 s: (101.0...129.0) LOW IDLE Speed rpm : 275 Rack travel in mm : -5.40...-5.60 Del.quantity cm3/: 15.0...21.0 1000 s: (12.0...24.0) cm3 : 8.00Spread 1000 s: (12.00) Remarks: Start-of-delivery mark at the "INJ" marking

Note remarks

: DAF 11,6 y6 Test sheet : 09.01.89 Edition Replaces : 11.3.88

: ISO-4113 Test oil

Combination no. : 0 401 846 537

Injection pump

Pump designation : PE6P12OA32ORS415-1

EP type number : 0 411 826 123

Governor

Governor design. : RQ250/1000PA417-7

: 0 421 801 382 Governer no.

Customer-spec. information : DAF Customer

: DKZ 1160 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

M1o

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - 0

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 20.6...20.8

100 s: (20.3...21.1)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 250.0 2nd speed

Rack travel in mm : 6.6...7.0 Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 650 Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed

Aneroid pressure h: 700

: 206.0...208.0 Del.quantity 1000 : (203.0...211.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

rom

Rack travel in mm : 15.8

Testing:

1st rack travel in: 11.50 Speed rpm: 1035...1050 2nd rack travel in: 4.00

rpm : 1100...1130 Speed

4th rack travel in: 1200

rpm : 0.00...1.00Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250 Rack travel in mm : 6.5

Testing:

Speed rpm : 100 Minimum rack trave: 7.40

Speed rpm : 250
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00

rpm : 450...490 Speed

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 12.70...12.80

2nd speed rpm : 990

Rack travel in m: 12.60...12.80

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600 Pressure hPa : 700

Rack travel mm : 12.50...12.60

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 10.30...10.50 2nd pressure hPa : 340 Rack travel in m: 11.80...11.90 3rd pressure hPa : 280 Rack travel in m: 10.60...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/: 140.0...142.0 1000 s: (137.0...145.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50

rpm : 1035...1050 Speed

M17

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 305.0...345.0

1000 s: (305.0...345.0) Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250 Rack travel in mm : 6.40...6.60

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION Omnibus

Note remarks

Test sheet : ENA 10,1 a7 Edition : 22.12.88

Replaces

: ISO-4113 Test oil

Combination no. : 0 401 846 544G

Injection pump

Pump designation : PE6P100A820LS130 EP type number : 0 411 806 179

Governor

Governor design. : RQ250/1050PA627-1

Governer no.

: 0 421 801 407

Customer-spec. information Customer : ENASA

: 9101.08.V2 Engine

: 125.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 / Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

M18

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - 0

: 1 Time to cyl. no.

BASIC SETTING

rpm: 980 1st speed

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 12.6...12.8

100 s: (12.4...13.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 250.0 2nd speed Rack travel in mm: 7.9...8.1 Del.quantity cm3/: 1.8...2.2

100 s: (1.5...2.4) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 600 Speed Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 980 Speed

: 126.0...128.0 Del.quantity 1000 : (124.0...130.0)

: 3.50 cm3 Spread : (6.00)

1000

RATED SPEED

1st version

Setting point:

: 600 Speed rpm Rack travel in mm: 16.0

Testing:

1st rack travel in: 11.50

rpm : 1045...1160 Speed

2nd rack travel in: 4.00

rpm : 1105...1135

4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 175 Rack travel in mm : 5.0

Testina:

Speed rpm : 75 Minimum rack trave: 6.50
Speed rpm: 175
Rack travel in mm: 4.90...5.10
Rack travel in mm: 2.00
Speed rpm: 240...280

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50 Speed rpm : 1045...1160

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 143.0...158.0 1000 s: (139.0...162.0)

LOW IDLE

Speed rpm : 175 Rack travel in mm : 4.90...5.10

Remarks:

APPLICATION

Special-purpose vehicle

Note remarks

: ENA 10,1 a8 Test sheet : 22.12.88 Edition

Replaces

Test oil

: ISO-4113

Combination no.

: 0 401 846 544H

Injection pump

Pump designation : PE6P100A820LS130 EP type number : 0 411 806 179

Governor

Governor design: RQ250/1050PA627-1

: 0 421 801 407 Governer no.

Customer-spec. information Customer : ENASA

Engine : 95 A2 ZZ,

: 127.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

M20

Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 980

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 10.4...10.6

100 s: (10.2...10.8)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 250.0 Rack travel in mm : 7.9...8.1 Del.quantity cm3/: 1.8...2.2

100 s: (1.5...2.4) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 Speed rpm : 600 Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 980 Speed

: 104.0...106.0 Del.quantity 1000 : (102.0...108.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.30

rpm : 1045...1060 Speed

2nd rack travel in: 4.00

: 1100...1130 Speed rpm

4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 175 Rack travel in mm : 5.0

Testing:

Speed rpm : 75 Minimum rack trave: 6.50

Speed rpm : 175
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 240...280

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.30 Speed rpm : 1045...1060

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 123.0...138.0 1000 s: (119.0...142.0)

LOW IDLE

Speed rpm : 175 Rack travel in mm : 4.90...5.10

Remarks:

APPLICATION

Note remarks

Test sheet : ENA 10,1 a9 : 22.12.88 Edition

Replaces

Test oil : ISO-4113

: 0 401 846 544K

Injection pump

Pump designation : PE6P100A820LS130 : 0 411 806 179 EP type number

Governor

Governor design. : RQ250/1050PA627-1

: 0 421 801 407 Governer no.

Customer-spec. information Customer : ENASA

Engine : 95 T1 AOEB 110

1st version kW : 146.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Combination no.

BASIC SETTING

Firing order

Tolerance + - °

Time to cyl. no.

Phasing

rom: 750 1st speed

Rack travel in mm : 14.10...14.20

Del.guantity cm3/: 16.7...16.9

100 s: (16.5...17.1)

: 1-5-3-6-2-4

: 0-60-120-180-240-300

: 0.50 (0.75)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0Rack travel in mm : 7.9...8.1 Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 600 Speed

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

: 167.0...169.0 Del.quantity 1000

: (165.0...171.0) : 3.50

cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm : 16.0

Testing:

1st rack travel in: 13.10

: 795...810 Speed rpm

2nd rack travel in: 4.00

Speed rpm : 830...860

4th rack travel in: 950

M22

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250 Rack travel in mm : 6.0

Testing:

Speed rpm : 100 Minimum rack trave: 7.50

Speed rpm: 250
Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00
Speed rpm: 350...390

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.10 Speed rpm : 795...810

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 118.0...133.0 1000 s: (114.0...137.0)

LOW IDLE

Speed rpm : 250 Rack travel in mm : 5.90...6.10

Remarks:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : ENA 12,0 a1 Test sheet : 22,12,88 Edition Replaces : ISO-4113 Test oil Combination no. : 0 401 846 548A Injection pump Pump designation : PE6P120A320RS257 EP type number : 0 411 826 075 Governor Governor design. : RQ250/1100PA877 : 0 421 801 409 Governer no. Customer-spec. information Customer : ENASA : 91T1 AY Engine : 206.0 1st version kW Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance $+ - \circ : 0.50 (0.75)$ Time to cyl. no. BASIC SETTING rpm: 1080 1st speed Rack travel in mm : 9.20...9.30 Del.quantity cm3/: 16.9...17.1 100 s: (16.6...17.4) Spread cm3 : 0.5100 s: (0.9) rpm : 250.0 2nd speed Rack travel in mm : 5.5...5.7 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) cm3 : 0.8Spread 100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 550 Speed Rack travel in mm : 15.60...16.40 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1080 Speed Aneroid pressure h: 900 Del.quantity 1000 : 169.0...171.0 : (166.0...174.0) cm3 : 5.00Spread 1000 : (9.00) RATED SPEED 1st version Setting point: rpm : 550 Speed Rack travel in mm: 16.0 Testing:

1st rack travel in: 8.20

rpm : 1145...1160 Speed

2nd rack travel in: 4.00

Speed rpm : 1185...1215 4th rack travel in: 1300 Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 250 Rack travel in mm : 5.6

Testina:

Speed rpm : 100 Minimum rack trave: 7.10 rpm : 250

Rack travel in mm: 5.50...5.70
Rack travel in mm: 2.00
Speed rpm: 340...380

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version 1st speed rpm : 1080

Rack travel in m: 9.20...9.30

2nd speed rpm : 700

Rack travel in m: 9.60...9.80

Aneroid/Altitude Compensator Test

1st version

Settina

rpm : 500 hPa : 900 Speed rom Pressure

Rack travel mm : 9.40...9.60

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 8.30...8.70

2nd pressure hPa : 320 Rack travel in m: 8.90...9.00

3rd pressure hPa : 450

Rack travel in m: 9.80...10.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 700 Del.quantity cm3/: 165.0...171.0 1000 s: (162.0...174.0)

Aneroid pressure h: -

Speed rpm: 500

Del.quantity cm3/: 123.0...125.0 1000 s: (120.0...128.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.20 Speed rpm : 1145...1160

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Rack travel in mm : 19.50...21.00

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : ENA 12,0 a2 : 22.12.88 Edition Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 401 846 548B Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PE6P120A320RS257 EP type number : 0 411 826 075 BASIC SETTING Governor Governor design. : RQ250/1100PA877 1st speed rpm : 1030: 0 421 801 409 Governer no. Rack travel in mm : 11.80...11.90 Customer-spec. information Del.quantity cm3/: 23.3...23.5 Customer : ENASA Engine : 91T1 C7 100 s: (23.0...23.8) 1st version kW : 228.0 Spread cm3 : 0.5: 2200 Rated speed 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 250.0 2nd speed Rack travel in mm : 5.5...5.7 Test oil Del.quantity cm3/: 1.7...2.3 inlet temp. °C : 38...42 100 s: (1.4...2.6) Overflow valve cm3 : 0.8 Spread 100 s: (1.2) : 1 417 413 025 GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Test nozzle holder Degree: -1 : 1 688 901 019 rpm : 550 assembly Speed Rack travel in mm : 15.60...16.40 Opening : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar Orifice plate 1st version rpm : 1030 diameter mm Speed : 0,8 Aneroid pressure h: 900 Del.quantity : 233.0...235.0 1000 Test lines : 1 680 750 067 : (230.0...238.0) : 5.00 Spread cm3 Outside diameter 1000 : (9.00) x Wall thickness x Length mm : 6.00x1.50x1000 RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point: per values rpm : 550 Rack travel in mm : 16.0 BEGINNING OF DELIVERY

Testina:

1st rack travel in: 10.80

Test pressure, bar: 25...27

rpm : 1095...1110 Speed 2nd rack travel in: 4.00

rpm : 1150...1180 Speed

4th rack travel in: 1250

rom : 0.00...1.00Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 250 Speed Rack travel in mm: 5.6

Testing:

Speed rpm : 100 Minimum rack trave: 7.10

Speed rpm : 250
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00

Speed : 340...380 rpm

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1030

Rack travel in m: 11.80...11.90 2nd speed rpm : 650 Rack travel in m: 12.20...12.40

Aneroid/Altitude Compensator Test

1st version

Settina

: 500 Speed **LDW** hPa : 900 Pressure

Rack travel mm : 12.20...12.40

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.80...10.20

2nd pressure hPa : 400

Rack travel in m: 9.70...9.80

3rd pressure hPa : 465

Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 650 Del.quantity cm3/: 197.0...203.0

1000 s: (194.0...206.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 134.0...136.0 1000 s: (131.0...139.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80

rpm : 1095...1110 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0) Rack travel in mm : 19.50...21.00

Remarks:

Check electrically unwented starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION

Note remarks

Test sheet : ENA 12,0 a3 : 22.12.88 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 401 846 5480

Injection pump

Pump designation : PE6P120A320RS257

EP type number : 0 411 826 075

Governor

Governor design. : RQ250/1100PA877 : 0 421 801 409 Governer no.

Customer-spec. information

Customer : ENASA

: 9156.05 Engine

: 228.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1080

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 22.2...22.4

100 s: (21.9...22.7)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 250.0 2nd speed Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 1.7...2.3

100 s: (1.4...2.6)

cm3 : 0.8Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 550 Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080Aneroid pressure h: 900

: 222.0...224.0 Del.quantity 1000 : (219.0...227.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm : 550 Rack travel in mm : 16.0

Testing:

1st rack travel in: 10.40

rpm : 1145...1160 Speed 2nd rack travel in: 4.00 rpm : 1195...1225 Speed

4th rack travel in: 1300

Speed rom : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 175 Rack travel in mm : 6.0

Testing:

Speed man Minimum rack trave: 7.50 rpm : 175 Speed

Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00

: 280...320 Speed rpm

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1080 Rack travel in m: 14.40...11.50 2nd speed rpm : 700

Rack travel in m: 11.60...11.80

Aneroid/Altitude Compensator Test

1st version

Setting

pm : 500 hPa : 900 Speed rpm Pressure

Rack travel mm : 11.60...11.80

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.40...8.80

2nd pressure hPa : 340 Rack travel in m: 9.30...9.40 3rd pressure hPa : 470

Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 700 Del.quantity cm3/ : 189.0...195.0 1000 s: (186.0...198.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 126.0...128.0 1000 s: (123.0...131.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

Speed rpm

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

: 175 Speed rpm

Rack travel in mm : 5.90...6.10

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : ENA 12,0 a4 : 22.12.88 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 0 401 846 5480 Injection pump Pump designation : PE6P12UA32URS257 EP type number : 0 411 826 075 Governor Governor design. : RQ250/1100PA877 : 0 421 801 409 Governer no. Customer-spec. information Customer : ENASA : 9157.08 Engine : 225.0 : 2200 1st version kW Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 019 Opening | pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter

x Wall thickness : 6.00x1.50x1000 x Length mm (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 1080 1st speed Rack travel in mm : 11.40...11.50 Del.quantity cm3/: 22.3...22.5 100 s: (22.0...22.8) cm3 : 0.5Spread 100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.7...2.3 100 s: (1.4...2.6) cm3 : 0.8 Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 550 Speed

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1080 Speed Aneroid pressure h: 900

: 223.0...225.0 Del.quantity 1000 : (220.0...228.0)

: 5.00 cm3 Spread 1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 550 rom Rack travel in mm : 16.0

Testina:

1st rack travel in: 10.40

Speed rpm : 1145...1160 2nd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1300

rpm : 0.00...1.00 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.0

Testing:

Speed rpm : 100 Minimum rack trave: 7.50 Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00

: 400...440 Speed rom

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1080
Rack travel in m: 11.40...11.50
2nd speed rpm : 700

Rack travel in m: 11.60...11.80

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rom hPa : 900 Pressure

Rack travel mm : 11.60...11.80

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 7.80...8.20

2nd pressure hPa : 340 Rack travel in m: 9.30...9.40

3rd pressure hPa : 470

Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 750
Del.quantity cm3/ : 201.0...207.0
1000 s: (198.0...210.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 111.0...113.0 1000 s: (108.0...116.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.90...6.10

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : ENA 10,1 d : 09.01.89 : 23.9.88 Edition Replaces Test oil : ISO-4113 Combination no. : 0 401 846 549 Injection pump Pump designation : PE6P100A820LS503 EP type number : 0 411 806 197 Governor Governor design. : RQV250...1000PA811 : 0 421 813 556 Governer no. Customer-spec. information Customer : ENASA Engine : 95 T1 AX, BX TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 2.80...2.90 : (2.75...2.95) Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-

: 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. BASIC SETTING 1st speed rpm: 980 Rack travel in mm : 14.20...14.30 Del.quantity cm3/: 16.5...16.7 100 s: (16.3...16.9) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 250.0 Rack travel in mm : 7.7...7.9 Del.quantity cm3/ : 1.8...2.2 100 s: (1.5...2.4) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL : 250 1st speed rpm : 1.00...1.40 travel mm : 400 2nd speed non : 2.20...2.80 travel mm 3rd speed : 650 man : 4.50...5.10 travel mm : 1050 4th speed rpm : 8.50...8.70 travel mm : 1140 5th speed rpm : 9.70...10.10 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1040 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 980 Aneroid pressure h: 900 : 165.0...167.0 Del.quantity 1000 : (163.0...169.0) : 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 46...54 Testina: 1st rack travel in: 13.20 Speed rpm : 1040...1050 2nd rack travel in: 4.00 Speed rpm : 1140...1170 4th rack travel in: 1250 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...18 Testina: Speed rpm Minimum rack trave: 7.50 rpm : 250 Rack travel in mm : 5.90...6.10 CONSTANT REGULATION rom : 250...350 Speed TORQUE CONTROL Dimension a mm : 0.50 Torque control curve - 1st version rpm : 980 1st speed Rack travel in m: 14.20...14.30 mgn : 550 2nd speed Rack travel in m: 15.00...15.30 rpm : 750 3rd speed Rack travel in m: 14.80...15.00 4th speed rpm : 850 Rack travel in m: 14.40...14.60 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 900 Pressure : 14.70...14.90 Rack travel mm Measurement Speed $1/\min : 500$ 1st pressure hPa : -

Rack travel in m: 12.90...13.30

Rack travel in m: 14.10...14.20 3rd pressure hPa : 300 Rack travel in m: 13.40...13.60

2nd pressure hPa : 400

1/min : 170 (190) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 rpm : 700 Speed Del.quantity cm3/: 170.0...174.0 1000 s: (168.0...176.0) Aneroid pressure h: Speed rpm : 500
Del.quantity cm3/ : 130.0...132.0
1000 s: (127.0...135.0) **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 13.20 rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 180.0...200.0 1000 s: (176.0...204.0)

LOW IDLE

: 250 Speed rom Rack travel in mm : 5.90...6.10

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION Special-purpose vehicle

START CUT-OUT

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : ENA 10,1 d1 : 09.01.89 Edition Replaces Test oil : ISO-4113 Combination no. : 0 401 846 549A Injection pump Pump designation : PE6P100A820LS503 : 0 411 806 197 EP type number Governor Governor design. : RQV250...1000PA811 : 0 421 813 556 Governer no. Customer-spec. information Customer : ENASA : 95 T1 BV Engine : 165.0 1st version kW Rated speed : 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - 0 : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 980 1st speed Rack travel in mm : 14.20...14.30 Del.quantity cm3/: 16.5...16.7 100 s: (16.3...16.9) cm3 : 0.3Spread 100 s: (0.6) rpm : 250.02nd speed Rack travel in mm : 7.7...7.9 Del.guantity cm3/: 1.8...2.2 100 s: (1.5...2.4) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 250 1.00...1.40 travel mm : 400 2nd speed rpm : 2.20...2.80 travel mm 3rd speed : 650 rpm : 4.50...5.10 travel mm : 1050 4th speed rpm : 8.50...8.70 travel mm : 1140 5th speed rpm : 9.70...10.10 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1040 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 980 Speed Aneroid pressure h: 900 : 165.0...167.0 Del.quantity 1000 : (163.0...169.0)

cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 46...54 Testina: 1st rack travel in: 13.20 rpm : 1030...1040 Speed 2nd rack travel in: 4.00 Speed rpm : 1130...1160 4th rack travel in: 1250 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed rpm : 100 Minimum rack trave: 7.50 Speed rpm : 250 Rack travel in mm : 5.90...6.10 CONSTANT REGULATION Speed rpm : 250...350 TORQUE CONTROL Dimension a mm : 0.50 Torque control curve - 1st version 1st speed rpm : 980 Rack travel in m: 14.20...14.30 2nd speed rpm : 550 Rack travel in m: 15.00...15.30 3rd speed rpm : 750 Rack travel in m: 14.80...15.00 4th speed rpm : 850 Rack travel in m: 14.40...14.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : 900 Rack travel mm : 14.70...14.90 Measurement Speed 1/min: 500

Rack travel in m: 13.40...13.60 START CUT-OUT 1/min : 170 (190) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 rpm : 700 Speed Del.quantity cm3/: 170.0...174.0 1000 s: (168.0...176.0) Speed rpm : 450
Del.quantity cm3/: 90.0...94.0
1000 s: (88.0...96.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 130.0...132.0 1000 s: (127.0...135.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.20 rpm : 1030...1040 Speed STARTING FUEL DELIVERY LOW IDLE rpm : 250 Rack travel in mm : 5.90...6.10 Remarks: Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION Special-purpose vehicle

N07

1st pressure hPa : -

Rack travel in m: 12.90...13.30 2nd pressure hPa : 400 Rack travel in m: 14.10...14.20 3rd pressure hPa : 300

Note remarks

Test sheet : ENA 10,1 d2 Edition : 09.01.89

Replaces

Test oil : ISO-4113

Combination no. : 0 401 846 549B

Injection pump

Pump designation : PE6P100A820LS503 : 0 411 806 197 EP type number

Governor

: RQV250...1000PA811 Governor design.

: 0 421 813 556 Governer no.

Customer-spec. information Customer : ENASA

: 95 T1 AW Engine

1st version kW : 155.0 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

: 1 680 750 015 Test Lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 9.00...12.00

NO8

Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 980 1st speed

Rack travel in mm : 13.30...13.40

Del.guantity cm3/: 15.0...15.2

100 s: (14.8...15.4)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 250.02nd speed Rack travel in mm : 7.7...7.9
Del.quantity cm3/ : 1.8...2.2
100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

: 1.00...1.40 travel mm : 400 2nd speed

rpm : 2.20...2.80 travel mm

3rd speed : 650 rpm : 4.50...5.10 travel mm

: 1050 4th speed rpm

8.50...8.70 travel mm

1140 5th speed rpm

: 9.70...10.10 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1040 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 980 Speed

Aneroid pressure h: 900

Del.quantity : 150.0...154.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 46...54

Testina:

1st rack travel in: 12.30

rpm : 1030...1040

2nd rack travel in: 4.00

Speed rpm : 1130...1160

4th rack travel in: 1250 Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 10...18

Testina:

Speed : 100 man Minimum rack trave: 7.50 : 250 Speed rpm

Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

rpm : 250...350 Speed

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 980
Rack travel in m: 13.30...13.40
2nd speed rpm : 550
Rack travel in m: 14.00...14.30

: 750 3rd speed rpm

Rack travel in m: 13.80...14.00

rpm : 850 4th speed

Rack travel in m: 13.50...13.70

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm hPa : 900 Pressure

Rack travel mm : 13.30...13.40

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 12.70...13.00

2nd pressure hPa : 260

Rack travel in m: 13.10...13.20

START CUT-OUT

1/min : 170 (190) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 700 Speed

Del.quantity cm3/: 143.0...147.0 1000 s: (141.0...149.0)

: 450 rom

Del.quantity cm3/: 89.0...93.0 1000 s: (87.0...95.0)

Aneroid pressure h:

Speed rpm : 500 Del.quantity cm3/ : 127.0...129.0 1000 s: (124.0...132.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.30

rpm : 1030...1040 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 180.0...200.0

1000 s: (176.0...204.0)

LOW IDLE

Speed rpm : 250 Rack travel in mm : 5.90...6.10

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION

Note remarks

Test sheet : ENA 11,9 a2 : 07.10.88 Edition

Replaces

: TSO-4113 Test oil

Combination no. : 0 401 846 5500

Injection pump

Pump designation : PE6P12OA32ORS257 : 0 411 826 075 EP type number

Governor

Governor design. : RQV250...1050PA808

: 0 421 813 553 Governer no.

Customer-spec. information Customer : FNASA

: 96 T1 CW Engine

1st version kW : 206.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no.

BASIC SETTING

rpm: 1080 1st speed

Rack travel in mm : 11.10...11.20

Del.guantity cm3/: 21.5...21.7

400 s: (21.2...22.0)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 250.0 2nd speed

Rack travel in mm : 5.6...5.8 Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed travel mm : 1.00...1.40

2nd speed : 350 rpm

1.70...2.30 travel mm

: 700 3rd speed rpm

: 4.50...5.10 travel mm : 1095

4th speed rpm travel mm

; 8.20...8.40 : 1175 5th speed

rpm

: 9.10...9.50 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1090

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1080 Speed Aneroid pressure h: 900

NIG

Del.quantity : 213.0...220.0)

: 5.00 cm3 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 44...52

Testina:

1st rack travel in: 10.10

rpm : 1120...1130 Speed

2nd rack travel in: 4.00

Speed rpm : 1190...1220 4th rack travel in: 1300

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 10...18

Testing:

Speed : 100 rpm Minimum rack trave: 7.20 rpm : 250

Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

rpm : 250...370 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm Pressure hPa : 900

: 11.10...11.20 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.70...9.10

2nd pressure hPa : 510 Rack travel in m: 10.40...10.50

3rd pressure hPa : 300

Rack travel in m: 9.20...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 : 650 Speed rpm

Del.quantity cm3/: 193.0...199.0 1000 s: (190.0...202.0)

N11

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 127.0...129.0 1000 s: (124.0...132.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1120...1130 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 140.0...160.0

1000 s: (136.0...164.0)

Rack travel in mm : 19.50...21.00

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

APPLICATION

Note remarks

: DAF 11,6116 Test sheet : 07.10.88 Edition

Replaces

: ISO-4113 Test oil

Combination no.

: 0 401 846 560

Injection pump

Pump designation : PE6P120A320RS372-1

EP type number : 0 411 826 121

Governor

Governor design: RQ250/1100PA417-6

Governer no.

: 0 421 801 367

Customer-spec. information : DAF Customer

Engine

: DKS 1160

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

N12

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm : 10.90...11.00

Del.guantity cm3/: 19.4...19.6

100 s: (19.1...19.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0 Rack travel in mm : 6.5...6.7 Del.quantity cm3/ : 1.4...2.0 100 s: (1.1...2.3) Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 700 Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850 Aneroid pressure h: 700

Del.quantity : 194.0...199.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

rpm Rack travel in mm : 15.8

Testing:

1st rack travel in: 9.90

rpm : 1145...1160 Speed

2nd rack travel in: 4.00

rpm : 1210...1240 Speed

4th rack travel in: 1350

rpm : 0.00...1.00Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 250° Speed Rack travel in mm : 6.3

Testing:

rpm : 100 Speed Minimum rack trave: 7.40 : 250 Speed rpm

Rack travel in mm : 6.20...6.40

Rack travel in mm : 2.00

rpm : 440...480 Speed

TORQUE CONTROL
Dimension a mm : ?

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 11.10...11.20

2nd speed rpm : 1100

Rack travel in m: 11.00...11.20

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600 hPa : 700 Pressure

: 10.90...11.00 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 9.80...9.90

2nd pressure hPa : 300 Rack travel in m: 10.60...10.70

3rd pressure hPa : 260

Rack travel in m: 10.00...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/ : 134.5...136.5

1000 s: (131.5...139.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90

rpm : 1145...1160 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 320.0...360.0 1000 s: (316.0...364.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 6.20...6.40

Remarks:

APPLICATION Omnibus

N13

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : PEN 12,1 a Test sheet Edition : 09.12.88 Replaces : 4.11.88 Test oil : ISO-4113 : 0 401 846 811 Combination no. Injection pump Pump designation : PE6P120A320RS3148 EP type number : 0 411 826 746 Governor Governor design. : RQ750PA783 Governer no. : 0 421 801 334 Customer-spec. information : VOLVO--PENTA Customer Engine : TJD121KG : 246.0 1st version kW : 1500 Rated speed TEST BENCH REQUIREMENTS Test oil : 38...42 inlet temp. °C Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Openina : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test Lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00x1.50x1000 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

: (2.55...2.75) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasina Tolerance + - 0 : 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 700 Rack travel in mm : 12.30...12.40 Del.guantity cm3/: 25.5...25.7 100 s: (25.2...26.0) Spread cm3 : 0.5100 s: (0.9) rpm : 300.0 2nd speed Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 1.5...2.0 Spread cm3 : 0.4 100 s: (0.7) FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 700 Del.quantity : 255.0...257.0 : (252.0...260.0) 1000 : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 21...29 Testing: 1st rack travel in: 11.30 Speed rpm : 750...755 2nd rack travel in: 4.00 rpm : 776...789 Speed 4th rack travel in: 850 : 0.00...1.00 Speed man LOW IDLE 1 Testing: : 100 Speed rpm

: 2.60...2.70

Prestroke mm

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.30 Speed rpm : 750...755

INTERMEDIATE RATED SPEED Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 190.0...220.0

Remarks:

APPLICATION Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : VOL 12,2 a1 Edition : 22.12.88 : 11.12.87 Replaces Test oil : ISO-4113 Combination no. : 0 401 846 826 Injection pump Pump designation : PE6P120A320RS3178 : 0 411 826 752 EP type number Governor : RQV250...1025PA657-Governor design. 10 : 0 421 813 567 Governer no. Customer-spec. information : VOLVO Customer : TD122FS Engine : 287.0 1st version kW : 2050 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 019 Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 3.60...3.70 : (3.55...3.75) Prestroke mm Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 : 0.50 (0.75) Tolerance + - ° Time to cyl. no. BASIC SETTING 1st speed rom : 700 Rack travel in mm : 14.00...14.10 Del.guantity cm3/: 25.2...25.4 100 s: (24.9...25.7) Spread cm3 : 0.5100 s: (0.9) rpm : 250.0 2nd speed Rack travel in mm : 4.8...5.1 Del.quantity cm3/ : 1.8...2.3 100 s: (1.5...2.5) cm3 : 0.5 Spread 100 s: (0.7) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1090 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 700 Aneroid pressure h: 1200 : 252.0...254.0 Del.quantity 1000 : (249.0...257.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 61...69 Testing: 1st rack travel in: 13.00

Speed rpm : 1055...1065

2nd rack travel in: 4.00

Speed rpm : 1140...1170 4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 6...14

Testing:

Speed rpm : 100 Minimum rack trave: 6.40 rpm : 250 Speed

Rack travel in mm : 4.80...5.10

CONSTANT REGULATION

rpm : 250...400 Speed

Aneroid/Altitude Compensator Test

1st version

Settina

Speed rpm : 500 Pressure hPa : 1200 Rack travel mm : 14.00...14.10

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 10.00...10.20

2nd pressure hPa : 100

Rack travel in m: 10.30...10.40 3rd pressure hPa : 810 Rack travel in m: 13.60...13.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm: 700

Del.quantity cm3/: 163.0...165.0 1000 s: (160.0...168.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.00

rpm : 1055...1065 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

N17

Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0) Rack travel in mm: 20.00...21.00

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 4.80...5.10 Del.quantity cm3/: 18.0...23.0 1000 s: (15.5...25.5)

cm3 : 5.00 Spread

1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

BOSCH INJ. PUMP TEST SPECIFICATIONS : 4.00...4.10 : (3.95...4.15) Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 6-3-5-2-4-1 Note remarks Test sheet : MB 11,0 s 4 : 28.11.88 Edition : 18.9.87 Replaces : 0-45-120-165-240-285 Test oil : TSO-4113 Phasina Combination no. : 0 401 846 830 Tolerance + - 0 : 0.50 (0.75) Injection pump Time to cyl. no. Pump designation : PE6P110A320LS3835 : 0 411 816 749 EP type number BASIC SETTING Governor Governor design. : RQV300...950PA829K rpm : 950 1st speed Governer no. : 0 421 815 166 Rack travel in mm : 13.10...13.20 Customer-spec. information Del.guantity cm3/: 12.6...12.8 Customer : DAIMLER-BENZ : OM441 100 s: (12.3...13.0) Engine : 150.0 cm3 : 0.41st version kW Spread : 1900 Rated speed 100 s: (0.8) TEST BENCH REQUIREMENTS rpm : 300.02nd speed Rack travel in mm : 8.8...8.9 Test oil inlet temp. °C : 38...42 Del.quantity cm3/ : 1.5...2.1 100 s: (1.2...2.3) cm3 : 0.4Overflow valve Spread : 1 417 413 025 100 s: (0.7) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Overflow quantity min. 1/h: 100...120 GUIDE SLEEVE TRAVEL rpm : 300 1st speed Test nozzle holder : 1.10...1.30 travel mm assembly : 0 681 343 009 2nd speed : 500 rpm 3.20...3.40 travel mm : 800 Opening 3rd speed rpn : 5.90...6.10 : 1000 pressure, bar : 172...175 travel mm 4th speed rpm : 8.00...8.40 travel mm Test lines : 1 680 750 015 : 1050 5th speed rpm : 9.50...10.00 travel mm Outside diameter GUIDE SLEEVE POSITION x Wall thickness : 6.00x1.50x600 x Length mm Control-lever position Degree: -1 rpm : 975 (A) Injection pump setting values Insp. values in parentheses Rack travel in mm : 15.20...17.80 Set equal delivery quant. FULL LOAD DELIV. AT FULL LOAD STOP per values BEGINNING OF DELIVERY 1st version rpm : 950 Test pressure, bar: 25...27 Speed

Del.quantity : 120.0...20.5) : 4.00 Spread cm3 1000 : (8.00) RATED SPEED 1st version Control lever position degrees: 58...66 Testina: 1st rack travel in: 12.10 rpm : 990...1000 Speed 2nd rack travel in: 4.00 rpm : 1045...1075 Speed 4th rack travel in: 1150 Speed rom : 0.00...1.00LOW IDLE 1 Control lever position degrees: 13...21 Testing: Speed : 100 rpm Minimum rack trave: 10.60 : 300 rpm Rack travel in mm : 8.80...9.00 CONSTANT REGULATION Speed rpm : 300...450 TORQUE CONTROL Dimension a mm : 0.20 Torque control curve - 1st version rpm : 975 1st speed Rack travel in m: 13.10...13.20 2nd speed rpm : 600 Rack travel in m: 12.90...13.10 3rd speed rpm : 750 Rack travel in m: 13.10...13.30 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm Del.quantity cm3/: 117.0...120.0 1000 s: (114.0...123.0) Spread cm3 : 6.001000 s: (9.00) : 750 Speed rpm Del.quantity cm3/: 120.0...124.0 1000 s: (117.0...127.0)

cm3 : 6.00 1000 s: (9.00) **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 12.10

Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 130.0...150.0

1000 s: (126.0...154.0)

Remarks:

N19

Spread

Note remarks

Test sheet : SCA 11,0r11 Edition : 12.01.89

Replaces

Test oil : ISO-4113

Combination no. : D 401 846 837

Injection pump

Pump designation : PE6P110A720RS3040 : 0 411 816 713 EP type number

Governor

: RQV200...1100PA555-3 Governor design.

Governer no. : D 421 813 633

Customer-spec. information

Customer : SAAB-SCANIA

Engine : DS11 39

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines **1 680 750 015**

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.30...3.40 Prestroke mm : (3.25...3.45)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-

: 0-60-120-180-240-300 Phasing

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 16.8...17.0

100 s: (16.6...17.2)

cm3 : 0.6Spread

100 s: (0.8)

rpm : 225.0 2nd speed

Rack travel in mm : 4.4...5.0 Del.quantity cm3/: 1.7...2.1

100 s: (-) cm3 : 0.2

Spread 100 s: (0.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225 : 0.50...0.90 travel mm

2nd speed : 350 rpm

: 2.00...2.60 travel mm

: 650 3rd speed rpm

4.90...5.50 travel mm

4th speed mgn

: 1145 : 8.30...8.50 travel mm

: 1300 5th speed rpm

: 9.70...10.10 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 100.0...172.0)

Spread cm3 : 5.00

1000 : (8.00)

RATED SPEED

N20

1st version Control lever

position degrees: 58...66

Testina:

1st rack travel in: 12.60

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1285...1315 Speed

4th rack travel in: 1400

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 4...12

Testina:

Speed : 100 rom Minimum rack trave: 6.00 : 225 Speed rpm

Rack travel in mm : 4.40...4.60

Rack travel in mm : 2.00

Speed rpm : 295...355

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 hPa : 900 Pressure

Rack travel mm : 13.60...13.70

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 11.80...12.20

2nd pressure hPa : 420

Rack travel in m: 13.20...13.30

3rd pressure hPa : 290

Rack travel in m: 12.30...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 1100 Del.quantity cm3/ : 165.5...170.5

1000 s: (163.0...173.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 133.0...137.0 1000 s: (131.0...139.0)

BREAKAWAY

N21

1st version 1mm rack travel less than

full load rack tr: 12.60 speed rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 240.0...290.0 1000 s: (-)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm: 225 Rack travel in mm: 4.40...4.60

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO

diaphragm.

For comb. with letter index see

VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania on 1988-09-12

Start of delivery - engine: 19° before

Firing sequence of engine:

1-5-3-6-2-4.

Note remarks

: FIA 13,8 i2 : 09.12.88 : 12.11.87 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 401 846 843

Injection pump

Pump designation : PE6P120A720RS3069 EP type number : 0 411 826 712

Governor

Governor design. : RQV300...1000PA501-4

: 0 421 813 609 Governer no.

Customer-spec. information Customer : IVECO-FIAT

: 8210.22.373 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.50...3.60 Prestroke mm : (3.45...3.65)

Rack travel in mm : 9.00...12.00

N22

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1 *

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 20.5...20.7

100 s: (20.2...21.0)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm: 6.0...6.4

Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.50...1.90 travel mm rpm : 450

2nd speed : 2.90...3.30 travel mm

: 800 3rd speed rpm

5.70...6.10 travel mm

: 1000 4th speed rpm

: 8.00...8.20 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1035 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 700

Del.quantity 1000 : 205.0...207.0

: (202.0...210.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 60...68

Testing:

1st rack travel in: 11.50

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

Speed rpm : 1130...1160

4th rack travel in: 1250

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 8...16

Testing:

Speed rpm : 100 Minimum rack trave: 7.70 rpm : 300 Speed

Rack travel in mm : 6.00...6.40

CONSTANT REGULATION

Speed rpm : 320...420

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 500 Speed hPa : 700 Pressure

Rack travel mm : 12.50...12.60

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.70...9.90

2nd pressure hPa : 280

Rack travel in m: 11.80...11.90

3rd pressure hPa : 230

Rack travel in m: 10.70...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 500 Del.quantity cm3/ : 215.0...221.0 1000 s: (212.0...224.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 131.0...133.0 1000 s: (128.0...136.0)

1st version

BREAKAWAY

1mm rack travel less than

full load rack tr: 11.50

Speed rpm : 1040...1050

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 185.0...215.0 1000 s: (181.0...219.0)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

: SCA 9,0 e 4 Test sheet Edition : 12.01.89

Replaces

: ISO-4113 Test oil

Combination no. : 0 401 846 846

Injection pump

Pump designation : PE6P120A320RS3141Q

EP type number : 0 411 826 768

Governor

Governor design. : RQV200...1100PA729-1

Governer no. : 0 421 813 470

Customer-spec. information

Customer : SAAB-SCANIA

: DS9 04 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Openina .

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Lenath mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15)

Rack travel in mm : 9.00...12.00

N24

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - □ : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.00...10.10

Del.quantity cm3/: 12.8...13.0

100 s: (12.5...13.3)

cm3 : 0.5Spread

100 s: (0.8)

rpm : 225.02nd speed Rack travel in mm: 4.4...4.8

Del.quantity cm3/ : 1.1...1.5

100 s: (-)

cm3 : 0.3Spread 100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

: 0.50...0.90 travel mm

rpm : 350 2nd speed

: 2.00...2.60 travel mm

3rd speed : 650 rpm

: 4.90...5.50 travel mm 4th speed rpm

: 1145 : 8.30...8.50 travel mm

5th speed : 1245 rpm

travel mm : 9.10...9.50

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1120 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 128.0...130.0 Del.quantity

1000 : (125.0...133.0)

: 5.00 cm3 Spread

: (8.00) 1000

RATED SPEED

1st version Control lever

position degrees: 56...64

Testing:

1st rack travel in: 9.00

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1230...1260 4th rack travel in: 1350 Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 4...12

Testing:

: 100 Speed rpm Minimum rack trave: 6.00 rpm : 225

Rack travel in mm: 4.40...4.60 Rack travel in mm: 2.00 Speed rpm: 295...355

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 1100 Speed

Del.quantity cm3/: 136.0...144.0 1000 s: (134.0...146.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.00

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 290.0...340.0 1000 s: (-) Rack travel in mm: 20.00...21.00

LOW IDLE

: 225 rpm

Rack travel in mm : 4.40...4.60

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO diaphragm.

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania on December 18, 1986 Engine model DS 11 - 17° before top dead center.

Firing sequence of engine: 1-5-3-6-2-4.

Note remarks

Test sheet : SCA 9,0 j Edition : 12.01.89

Replaces

Test oil : ISO-4113

Combination no. : 0 401 846 849

Injection pump

Pump designation : PE6P120A320RS3196 : 0 411 826 763 EP type number

Governor

Governor design. : RQV200...1100PA729-1

: 0 421 813 470 Governer no.

Customer-spec. information

Customer : SAAB-SCANIA

: DS9 06 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10

: (4.95...5.15)

Rack travel in mm : 9.00...12.00

N26

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - 0 : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 700 1st speed

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 13.3...13.5

100 s: (13.0...13.8)

Spread cm3 : 0.5

100 s: (0.8)

rpm : 225.0 2nd speed Rack travel in mm : 4.7...5.3 Del.quantity cm3/: 2.2...2.6

100 s: (-) cm3 : 0.3 100 s: (0.6) Spread

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

: 0.50...0.90 travel mm

350 2nd speed rpm

2.00...2.60 travel mm

: 650 3rd speed rpm

: 4.90...5,50 travel mm

: 1145 4th speed rpm

: 8.30...8.50 travel mm

: 1250 5th speed rpm

: 9.20...9.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 133.0...135.0

1000 : (130.0...138.0)

: 5.00 Spread cm3

: (8.00) 1000

RATED SPEED

1st version Control lever

position degrees: 561..64

Testing:

1st rack travel in: 9.40

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1235...1265

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 4...12

Testing:

: 100 Speed rom Minimum rack trave: 6.20

: 225 rpm

Rack travel in mm : 4.60...4.80

Rack travel in mm : 2.00

rpm : 300...360 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 1100 Speed

Del.quantity cm3/: 145.0...153.0 1000 s: (143.0...155.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 330.0...380.0 1000 s: (-) Rack travel in mm : 20.00...21.00

LOW IDLE

: 225 man

Rack travel in mm : 4.60...4.80

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm. Permissible alteration of 3.0...3.5 mm ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO diaphragm.

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania on 1988-09-12 Start of delivery - engine: 13° before Firing sequence of engine: 1-5-3-6-2-4.